

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

APTIV TECHNOLOGIES LIMITED,)
)
Plaintiff,)
)
v.) C.A. No. 23-307 (JDW)
)
MICROCHIP TECHNOLOGY, INC.,) JURY TRIAL DEMANDED
)
Defendant.)
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MICROCHIP TECHNOLOGY, INC.,)
)
Counter Plaintiff,)
)
v.)
)
APTIV TECHNOLOGIES LIMITED and)
APTIV SERVICES US, LLC,)
)
Counter Defendants.)

**MICROCHIP TECHNOLOGY INC.’S ANSWER, AFFIRMATIVE DEFENSES, AND
COUNTERCLAIMS TO APTIV TECHNOLOGIES LIMITED’S AMENDED
COMPLAINT**

Microchip Technology Inc. (“Microchip”) hereby submits its Answer to Plaintiff Aptiv Technologies Limited (“Aptiv Technologies”)’s Amended Complaint, Affirmative Defenses, and Counterclaims.¹ Unless specifically admitted, Microchip denies each and every allegation made by Aptiv Technologies in the Amended Complaint, and states as follows. For ease of reference, Microchip refers to Aptiv Technologies’ headings and titles, but to the extent those headings and titles could be construed to contain factual allegations, those allegations are denied.

¹ Aptiv Technologies names “Microchip Technology, Inc.” as the defendant in this matter. No such entity exists. Microchip assumes that Aptiv Technologies intended to refer to “Microchip Technology Inc.” Microchip has corrected the caption and responds to Aptiv Technologies’ Amended Complaint as if it had identified Microchip Technology Inc. as the defendant.

NATURE OF THE ACTION

1. Microchip admits that this is a civil action for patent infringement. Microchip admits that Aptiv Technologies alleges infringement of U.S. Patent Nos. 9,619,420 (the “420 Patent”); 9,645,962 (the “962 Patent”); 9,460,037 (the “037 Patent”); 10,545,899 (the “899 Patent”); 11,176,072 (the “072 Patent”); and 11,681,643 (the “643 Patent”) (collectively, the “Aptiv Patents”). Microchip further admits that Exhibits A–E, and K purport to be copies of the Aptiv Patents. Microchip denies the remaining allegations of Paragraph 1 of the Amended Complaint and denies that Microchip has infringed the Aptiv Patents.

THE PARTIES

2. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 2 of the Amended Complaint and, on that basis, denies them.

3. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 3 of the Amended Complaint and, on that basis, denies them.

4. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 4 of the Amended Complaint and, on that basis, denies them.

5. Microchip admits that it is a Delaware corporation with a place of business located at 2355 West Chandler Blvd., Chandler, Arizona 85224-6199, and that it is a leading provider of integrated circuits. Microchip otherwise denies the allegations of Paragraph 5 of the Amended Complaint.

JURISDICTION AND VENUE

6. The allegations of Paragraph 6 are legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip will not contest subject matter jurisdiction for purposes of this action only.

7. Microchip denies committing any acts of infringement. Microchip admits that it filed a patent infringement action against an entity that later changed its name to Aptiv Services US, LLC (“Aptiv Services”) (*Microchip Technology Inc. v. Aptiv Services US, LLC*, Case No. 17-cv-01194-JDW (D. Del.) (the “2017 Action”)). For purposes of this case only, Microchip will not challenge personal jurisdiction or venue in the District of Delaware. The remaining allegations of Paragraph 7 are legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 7 of the Amended Complaint.

APTIV TECHNOLOGIES’ PATENTED TECHNOLOGY

8. Microchip admits that the Amended Complaint purports to relate to Apple CarPlay. Microchip admits that the website <https://www.apple.com/ios/carplay> states as of May 4, 2023 that CarPlay allows users to “get directions, make calls, send and receive messages, and enjoy your favorite music . . . [a]ll on your car’s built-in display.” Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 8 of the Amended Complaint and, on that basis, denies them.

9. Microchip admits that Apple publicly announced “iOS in the Car” at the Worldwide Developers Conference in 2013. Microchip admits that CarPlay related to a vehicle’s built-in infotainment system, that Apple’s Accessory Interface Specification related to certain CarPlay requirements, and that Apple had a certification process relating to CarPlay. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 9 of the Amended Complaint and, on that basis, denies them.

10. Microchip admits that CarPlay may employ USB technology. Microchip further admits that USB existed before CarPlay. Microchip further admits that there are various USB

standards and that USB may connect a mouse to a laptop. Microchip denies the remaining allegations of Paragraph 10 of the Amended Complaint.

11. Microchip admits that a USB system may employ a hub, and that a hub may connect to devices such as a laptop, a flash drive, a mouse, or a printer. To the extent that Paragraph 11 of the Amended Complaint contains additional allegations, Microchip denies any such allegations.

12. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding a “typical” vehicle infotainment system prior to CarPlay and, on that basis, denies them.

13. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding a “typical” vehicle infotainment system prior to CarPlay and, on that basis, denies them.

14. Microchip admits that CarPlay required an iPhone to operate in host mode to a certain extent, at certain times. Microchip lacks knowledge or information sufficient to form as a belief as to how unspecified “auto manufacturers and their suppliers” responded to this alleged requirement or whether the head unit “typically” controlled devices and, on that basis, denies those allegations. Microchip denies the remaining allegations in Paragraph 14 of the Amended Complaint.

15. Microchip admits that Unwired Technology LLC (“Unwired”) has purchased certain chips from Microchip. Microchip further admits that Unwired and Microchip had a business relationship. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 15 of the Amended Complaint, including whether Aptiv Technologies, Aptiv Services, or other related entities acquired Unwired and, on that basis, denies them.

16. Microchip denies the allegations of Paragraph 16 of the Amended Complaint.

17. Microchip denies the allegations of Paragraph 17 of the Amended Complaint.

18. Microchip denies the allegations in the first sentence of Paragraph 18 of the Amended Complaint. The remaining allegations of Paragraph 18 of the Amended Complaint are legal conclusions regarding the scope of the Aptiv Patents and do not require a response. To the extent that any response to such allegations is required, Microchip denies the remaining allegations of Paragraph 18 of the Amended Complaint.

19. Microchip admits that Apple CarPlay is now available from multiple major auto manufacturers and in a number of vehicle models. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 19 of the Amended Complaint and, on that basis, denies them.

20. Microchip admits that Exhibit I to the Amended Complaint includes the language quoted in Paragraph 20 of the Amended Complaint. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 20 of the Amended Complaint and, on that basis, denies them.

MICROCHIP'S INFRINGING PRODUCTS

21. Microchip admits that certain of its personnel were aware, in or around 2014, that Unwired was developing a USB hub. Microchip further admits that it made FlexConnect available to its customers. Microchip denies the remaining allegations of Paragraph 21 of the Amended Complaint.

22. Microchip denies the allegations of Paragraph 22 of the Amended Complaint.

23. Microchip denies the allegations of Paragraph 23 of the Amended Complaint.

24. Microchip denies the allegations of Paragraph 24 of the Amended Complaint.

25. Microchip admits that, on its face, the '037 Patent states that it issued from Application No. 14/487,947 (the "'947 Application"), which published as Pub. No. 2015/0089092. Microchip admits that, based on the information stated on the faces of the Aptiv Patents, the '947 Application purports to have been the first to publish of the applications that led to the Aptiv Patents. Microchip admits that, based on the information stated on the faces of the Aptiv Patents, each of the other five Aptiv Patents purport to have issued from applications that were continuations (or continuations-in-part) of the '947 Application. The remaining allegations of Paragraph 25 of the Amended Complaint are legal conclusions regarding the scope of the Aptiv Patents and do not require a response. To the extent that any response to such allegations is required, Microchip denies the remaining allegations of Paragraph 25 of the Amended Complaint.

26. Microchip admits that it internally referred to certain products using the project name "Sandia." Microchip denies the remaining allegations of Paragraph 26 of the Amended Complaint.

27. Microchip denies the allegations of Paragraph 27 of the Amended Complaint.

28. Microchip admits that it has offered and/or continues to offer for sale the Sandia products, including USB4912, USB4914, and USB4916 (collectively, the "Accused Products"). Microchip denies the remaining allegations of Paragraph 28 of the Amended Complaint.

MICROCHIP'S HARMFUL ACTS

29. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 29 of the Amended Complaint and, on that basis, denies them.

30. Microchip admits that Unwired has purchased certain chips from Microchip and that Unwired and Microchip have negotiated over the price of certain of Microchip chips. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding the purported contract between Unwired and General Motors and, on that

basis, denies them. Microchip denies the remaining allegations of Paragraph 30 of the Amended Complaint.

31. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 31 and, on that basis, denies them.

32. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 32 of the Amended Complaint regarding automakers' interest in the Dual Role Hub or purported contracts, on that basis, denies them. Microchip denies the remaining allegations of Paragraph 32 of the Amended Complaint.

33. Microchip denies the allegations of Paragraph 33 of the Amended Complaint.

34. Microchip denies the allegations of Paragraph 34 of the Amended Complaint.

35. Microchip denies that the Sandia products infringe the Aptiv Patents. Microchip lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 35 of the Amended Complaint and, on that basis, denies them.

36. Microchip admits that it sells its Sandia products to certain car manufacturers. Microchip denies the remaining allegations of Paragraph 36 of the Amended Complaint.

37. Microchip denies the allegations of Paragraph 37 of the Amended Complaint.

38. Microchip lacks knowledge as to whether Microchip is the sole source of certain chips. Microchip denies the remaining allegations of Paragraph 38 of the Amended Complaint.

FIRST CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 9,619,420)

39. Microchip repeats and incorporates by reference Paragraphs 8 through 38 above as though fully set forth herein.

40. Microchip denies the allegations of Paragraph 40 of the Amended Complaint.

41. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 41 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 41 of the Amended Complaint.

42. Microchip denies the allegations of Paragraph 42 of the Amended Complaint.

43. Microchip denies the allegations in the preamble of Paragraph 43 of the Amended Complaint.

a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrase “highly integrated chip.” The remaining allegations of Paragraph 43a of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43a of the Amended Complaint.

b. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “is a USB2.0 Hi-Speed Hub,” “[t]he multiple downstream USB ports support USB2.0 Low Speed/Full Speed/Hi-Speed with a single USB2.0 Hi-Speed upstream port for host connection,” and “downstream ports with dual role (host/device) physical interfaces.” Microchip admits that Exhibit J uses the phrase “automotive head unit (USB Host).” The remaining allegations of

Paragraph 43b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43b of the Amended Complaint.

- c. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “Multi-Host Endpoint Reflector” and “USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” The remaining allegations of Paragraph 43c of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43c of the Amended Complaint.
- d. The allegations of Paragraph 43d of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43d of the Amended Complaint.
- e. The allegations of Paragraph 43e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43e of the Amended Complaint.
- f. The allegations of Paragraph 43f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any

response to such allegations is required, Microchip denies the allegations of Paragraph 43f of the Amended Complaint.

- g. The allegations of Paragraph 43g of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43g of the Amended Complaint.
- h. The allegations of Paragraph 43h of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 43h of the Amended Complaint.

- 44. Microchip denies the allegations of Paragraph 44 of the Amended Complaint.
- 45. Microchip denies the allegations of Paragraph 45 of the Amended Complaint.
- 46. Microchip denies the allegations of Paragraph 46 of the Amended Complaint.
- 47. Microchip admits that certain Microchip employees became aware of the '420

Patent in the 2017 Action, wherein the '420 Patent was an exhibit at trial. The allegation that the Dual Role Hub is an embodying product of the Aptiv Patents states a legal conclusion to which no response is required. To the extent that any response to such allegation is required, Microchip denies the allegation. Microchip denies the remaining allegations of Paragraph 47 of the Amended Complaint.

- 48. Microchip denies the allegations of Paragraph 48 of the Amended Complaint.
- 49. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip's website, and use the phrase "architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the

mobile device to the head unit display.” The remaining allegations of Paragraph 49 of the Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 49 of the Amended Complaint.

50. Microchip denies the allegations of Paragraph 50 of the Amended Complaint.

51. Microchip admits that it manufactures certain of the Accused Products outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 51 of the Amended Complaint.

52. Microchip denies the allegations of Paragraph 52 of the Amended Complaint.

53. Microchip denies the allegations of Paragraph 53 of the Amended Complaint.

54. Microchip denies the allegations of Paragraph 54 of the Amended Complaint.

55. Microchip denies the allegations of Paragraph 55 of the Amended Complaint.

56. Microchip denies the allegations of Paragraph 56 of the Amended Complaint.

57. Microchip denies the allegations of Paragraph 57 of the Amended Complaint.

SECOND CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 9,645,962)

58. Microchip repeats and incorporates by reference Paragraphs 8 through 57 above as though fully set forth herein.

59. Microchip denies the allegations of Paragraph 59 of the Amended Complaint.

60. Microchip denies the allegations of Paragraph 60 of the Amended Complaint.

61. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has

manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 61 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 61 of the Amended Complaint.

62. Microchip denies the allegations in the preamble of Paragraph 62 of the Amended Complaint.

- a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrase “integrated chip.” The remaining allegations of Paragraph 62a of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62a of the Amended Complaint.
- b. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website and use the phrases “a USB2.0 Hi-Speed Hub,” “upstream port for host connection,” and “multiple downstream USB ports.” The remaining allegations of Paragraph 62b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62b of the Amended Complaint.
- c. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “Multi-Host Endpoint Reflector” and “USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” The remaining allegations of

Paragraph 62c of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62c of the Amended Complaint.

- d. The allegations of Paragraph 62d of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62d of the Amended Complaint.
- e. The allegations of Paragraph 62e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62e of the Amended Complaint.
- f. The allegations of Paragraph 62f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62f of the Amended Complaint.
- g. The allegations of Paragraph 62g of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 62g of the Amended Complaint.
- h. The allegations of Paragraph 62h of the Amended Complaint state legal conclusions to which no response is required. To the extent that any

response to such allegations is required, Microchip denies the allegations of Paragraph 62h of the Amended Complaint.

63. Microchip denies the allegations of Paragraph 63 of the Amended Complaint.

64. Microchip denies the allegations of Paragraph 64 of the Amended Complaint.

65. Microchip denies the allegations of Paragraph 65 of the Amended Complaint.

66. Microchip admits that certain Microchip employees became aware of the '962

Patent in the 2017 Action wherein the '962 Patent was an exhibit at trial. The allegation that the Dual Role Hub is an embodying product of the Aptiv Patents states a legal conclusion to which no response is required. To the extent that any response to such allegation is required, Microchip denies the allegation. Microchip denies the remaining allegations of Paragraph 66 of the Amended Complaint.

67. Microchip denies the allegations of Paragraph 67 of the Amended Complaint.

68. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip's website, and use the phrase "architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display." The remaining allegations of Paragraph 68 of the Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 68 of the Amended Complaint.

69. Microchip denies the allegations of Paragraph 69 of the Amended Complaint.

70. Microchip admits that it manufactures the Accused Products outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into

vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 70 of the Amended Complaint.

71. Microchip denies the allegations of Paragraph 71 of the Amended Complaint.
72. Microchip denies the allegations of Paragraph 72 of the Amended Complaint.
73. Microchip denies the allegations of Paragraph 73 of the Amended Complaint.
74. Microchip denies the allegations of Paragraph 74 of the Amended Complaint.
75. Microchip denies the allegations of Paragraph 75 of the Amended Complaint.
76. Microchip denies the allegations of Paragraph 76 of the Amended Complaint.

THIRD CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 9,460,037)

77. Microchip repeats and incorporates by reference Paragraphs 8 through 76 above as though fully set forth herein.

78. Microchip denies the allegations of Paragraph 78 of the Amended Complaint.

79. Microchip denies the allegations of Paragraph 79 of the Amended Complaint.

80. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 80 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 80 of the Amended Complaint.

81. Microchip denies the allegations in the preamble of Paragraph 81 of the Amended Complaint.

- a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “USB2.0 Hi-Speed Automotive Hub,” “Recommended for Automotive Design,” “targeted to automotive consumer ports,” “Target Applications,” and “Embedded Automotive Systems.” The remaining allegations of Paragraph 81a of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 81a of the Amended Complaint.
- b. Microchip admits that Exhibit J uses the phrase “automotive head unit (USB Host)” and contains the figure reproduced in Paragraph 81b of the Amended Complaint. The remaining allegations of Paragraph 81b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 81b of the Amended Complaint.
- c. Microchip admits that Exhibits F–H to the Amended Complaint show portions of the Accused Products’ webpages and state that (1) each Accused Product “is a USB2.0 Hi-Speed Hub”; (2) “[t]he multiple downstream USB ports support USB2.0 Low Speed/Full Speed/Hi-Speed with a single USB2.0 Hi-Speed upstream port for host connection”; and (3) one of the product features is one, two, or four (depending on the product) “downstream ports with dual role (host/device) physical interfaces.” The

remaining allegations of Paragraph 81c of the Amended Complaint state legal conclusions to which no response is required.

- d. Microchip admits that Exhibits F–H to the Amended Complaint show portions of the Accused Products' webpages and state “The Multi-Host Endpoint Reflector employs patented technology such that USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” The remaining allegations of Paragraph 81d of the Amended Complaint state legal conclusions to which no response is required.
- e. The allegations of Paragraph 81e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 81e of the Amended Complaint.
- f. The allegations of Paragraph 81f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 81f of the Amended Complaint.
- g. The allegations of Paragraph 81g of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 81g of the Amended Complaint.
- h. The allegations of Paragraph 81h of the Amended Complaint state legal conclusions to which no response is required. To the extent that any

response to such allegations is required, Microchip denies the allegations of Paragraph 81h of the Amended Complaint.

82. Microchip denies the allegations of Paragraph 82 of the Amended Complaint.

83. Microchip denies the allegations of Paragraph 83 of the Amended Complaint.

84. Microchip denies the allegations of Paragraph 84 of the Amended Complaint.

85. Microchip admits that certain Microchip employees became aware of the '037

Patent in the 2017 Action wherein the '037 Patent was an exhibit at trial. The allegation that the Dual Role Hub is an embodying product of the Aptiv Patents states a legal conclusion to which no response is required. To the extent that any response to such allegation is required, Microchip denies the allegation. Microchip denies the remaining allegations of Paragraph 85 of the Amended Complaint.

86. Microchip denies the allegations of Paragraph 86 of the Amended Complaint.

87. Microchip admits that Exhibits F–H to the Amended Complaint show Microchip's website, and use the phrase "architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display." The remaining allegations of Paragraph 87 of the Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 87 of the Amended Complaint.

88. Microchip denies the allegations of Paragraph 88 of the Amended Complaint.

89. Microchip admits that it manufactures the Accused Products outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 89 of the Amended Complaint.

90. Microchip denies the allegations of Paragraph 90 of the Amended Complaint.
91. Microchip denies the allegations of Paragraph 91 of the Amended Complaint.
92. Microchip denies the allegations of Paragraph 92 of the Amended Complaint.
93. Microchip denies the allegations of Paragraph 93 of the Amended Complaint.
94. Microchip denies the allegations of Paragraph 94 of the Amended Complaint.
95. Microchip denies the allegations of Paragraph 95 of the Amended Complaint.

FOURTH CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 10,545,899)

96. Microchip repeats and incorporates by reference Paragraphs 8 through 95 above as though fully set forth herein.
 97. Microchip denies the allegations of Paragraph 97 of the Amended Complaint.
 98. Microchip denies the allegations of Paragraph 98 of the Amended Complaint.
 99. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 99 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 99 of the Amended Complaint.

100. Microchip denies the allegations in the preamble of Paragraph 100 of the Amended Complaint.

- a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrase “such that USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB

transactions. This capability is fundamental in delivering architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display.” The remaining allegations of Paragraph 100a of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100a of the Amended Complaint.

- b. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “a USB2.0 Hi-Speed Hub,” “upstream port for host connection,” and “multiple downstream USB ports.” The remaining allegations of Paragraph 100b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100b of the Amended Complaint.
- c. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “Multi-Host Endpoint Reflector” and “USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” The remaining allegations of Paragraph 100c of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100c of the Amended Complaint.

- d. The allegations of Paragraph 100d of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100d of the Amended Complaint.
- e. The allegations of Paragraph 100e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100e of the Amended Complaint.
- f. The allegations of Paragraph 100f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100f of the Amended Complaint.
- g. The allegations of Paragraph 100g of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 100g of the Amended Complaint.

101. Microchip denies the allegations of Paragraph 101 of the Amended Complaint.
102. Microchip denies the allegations of Paragraph 102 of the Amended Complaint.
103. Microchip denies the allegations of Paragraph 103 of the Amended Complaint.
104. Microchip admits that certain Microchip employees became aware of the '899 Patent in the 2017 Action wherein the '899 Patent was an exhibit at trial. The allegation that the Dual Role Hub is an embodying product of the Aptiv Patents states a legal conclusion to which no response is required. To the extent that any response to such allegation is required, Microchip

denies the allegation. Microchip denies the remaining allegations of Paragraph 104 of the Amended Complaint.

105. Microchip denies the allegations of Paragraph 105 of the Amended Complaint.

106. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrase “architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display.” The remaining allegations of Paragraph 106 of the Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 106 of the Amended Complaint.

107. Microchip denies the allegations of Paragraph 107 of the Amended Complaint.

108. Microchip admits that it manufactures the Accused Products outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 108 of the Amended Complaint.

109. Microchip denies the allegations of Paragraph 109 of the Amended Complaint.

110. Microchip denies the allegations of Paragraph 110 of the Amended Complaint.

111. Microchip denies the allegations of Paragraph 111 of the Amended Complaint.

112. Microchip denies the allegations of Paragraph 112 of the Amended Complaint.

113. Microchip denies the allegations of Paragraph 113 of the Amended Complaint.

114. Microchip denies the allegations of Paragraph 114 of the Amended Complaint.

FIFTH CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 11,176,072)

115. Microchip repeats and incorporates by reference Paragraphs 8 through 114 above as though fully set forth herein.

116. Microchip denies the allegations of Paragraph 116 of the Amended Complaint.

117. Microchip denies the allegations of Paragraph 117 of the Amended Complaint.

118. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 118 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 118 of the Amended Complaint.

119. Microchip denies the allegations in the preamble of Paragraph 119 of the Amended Complaint.

a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “USB2.0 Hi-Speed Hub,” “upstream port for host connection,” “with dual role (host/device) physical interfaces,” “Multi-Host Endpoint Reflector,” and “USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” Microchip admits that Exhibit J uses the phrase “automotive head unit (USB Host).” The remaining allegations of Paragraph 119a of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required,

Microchip denies the allegations of Paragraph 119a of the Amended Complaint.

- b. The allegations of Paragraph 119b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 119b of the Amended Complaint.
- c. The allegations of Paragraph 119c of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 119c of the Amended Complaint.
- d. The allegations of Paragraph 119d of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 119d of the Amended Complaint.
- e. The allegations of Paragraph 119e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 119e of the Amended Complaint.
- f. The allegations of Paragraph 119f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 119f of the Amended Complaint.

120. Microchip denies the allegations of Paragraph 120 of the Amended Complaint.

121. Microchip denies the allegations of Paragraph 121 of the Amended Complaint.

122. Microchip denies the allegations of Paragraph 122 of the Amended Complaint.

123. Microchip admits that certain Microchip employees became aware of the '072 Patent in the 2017 Action wherein the '072 Patent was an exhibit at trial. The allegation that the Dual Role Hub is an embodying product of the Aptiv Patents states a legal conclusion to which no response is required. To the extent that any response to such allegation is required, Microchip denies the allegation. Microchip denies the remaining allegations of Paragraph 123 of the Amended Complaint.

124. Microchip denies the allegations of Paragraph 124 of the Amended Complaint.

125. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip's website, and use the phrase "architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display." The remaining allegations of Paragraph 125 of the Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 125 of the Amended Complaint.

126. Microchip denies the allegations of Paragraph 126 of the Amended Complaint.

127. Microchip admits that it manufactures the Accused Products primarily outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 127 of the Amended Complaint.

128. Microchip denies the allegations of Paragraph 128 of the Amended Complaint.

129. Microchip denies the allegations of Paragraph 129 of the Amended Complaint.

130. Microchip denies the allegations of Paragraph 130 of the Amended Complaint.
131. Microchip denies the allegations of Paragraph 131 of the Amended Complaint.
132. Microchip denies the allegations of Paragraph 132 of the Amended Complaint.
133. Microchip denies the allegations of Paragraph 133 of the Amended Complaint.

SIXTH CAUSE OF ACTION

(INFRINGEMENT OF U.S. PATENT NO. 11,681,643)

134. Microchip repeats and incorporates by reference Paragraphs 8 through 133 above as though fully set forth herein.
135. Microchip denies the allegations of Paragraph 135 of the Amended Complaint.
136. Microchip denies the allegations of Paragraph 136 of the Amended Complaint.
137. Microchip admits that it offers to sell (through its website and its sales personnel) and sells certain of the Accused Products in the United States. Microchip further admits that it manufactures the Accused Products outside the United States. Microchip denies that it has manufactured prototypes of the Accused Products in the United States. The remaining allegations of Paragraph 137 of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 137 of the Amended Complaint.

138. Microchip denies the allegations in the preamble of Paragraph 138 of the Amended Complaint.

- a. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “USB2.0 Hi-Speed Hub,” “upstream port for host connection,” and “with dual role (host/device) physical interfaces.” The remaining allegations of Paragraph 138a of the Amended Complaint state legal conclusions to which no

response is required. To the extent that any response to such allegations is required, Microchip denies the remaining allegations of Paragraph 138a of the Amended Complaint.

- b. The allegations of Paragraph 138b of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 138b of the Amended Complaint.
- c. The allegations of Paragraph 138c of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 138c of the Amended Complaint.
- d. The allegations of Paragraph 138d of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 138d of the Amended Complaint.
- e. Microchip admits that Exhibit J uses the phrase “enumerates a smartphone on Multi-Host capable port ‘X’ and recognizes that it is capable of an automotive session.” The remaining allegations of Paragraph 138e of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the remaining allegations of Paragraph 138e of the Amended Complaint.

- f. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrases “Multi-Host Endpoint Reflector” and “USB data is ‘mirrored’ between two USB hosts (Multi-Host) in order to execute USB transactions.” The remaining allegations of Paragraph 138f of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the remaining allegations of Paragraph 138f of the Amended Complaint.
- g. The allegations of Paragraph 138g of the Amended Complaint state legal conclusions to which no response is required. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 138g of the Amended Complaint.

139. Microchip denies the allegations of Paragraph 139 of the Amended Complaint.

140. Microchip admits that it has known of the ’643 Patent since the time it issued on June 20, 2023. Microchip denies the remaining allegations of Paragraph 140 of the Amended Complaint.

141. Microchip denies the allegations of Paragraph 141 of the Amended Complaint.

142. Microchip denies the allegations of Paragraph 142 of the Amended Complaint.

143. Microchip denies the allegations of Paragraph 143 of the Amended Complaint.

144. Microchip admits that Exhibits F–H to the Amended Complaint show portions of Microchip’s website, and use the phrase “architectures for smart phones that require host / device swapping in order to set-up an automotive session, including graphic user interface, from the mobile device to the head unit display.” The remaining allegations of Paragraph 144 of the

Amended Complaint are legal conclusions that do not require a response. To the extent that any response to such allegations is required, Microchip denies the allegations of Paragraph 144 of the Amended Complaint.

145. Microchip denies the allegations of Paragraph 145 of the Amended Complaint.

146. Microchip admits that it manufactures the Accused Products primarily outside the United States, and that it sells certain of the Accused Products that are incorporated by third parties into vehicles that are ultimately offered for sale, sold, tested, or used in the United States. Microchip denies the remaining allegations of Paragraph 146 of the Amended Complaint.

147. Microchip denies the allegations of Paragraph 147 of the Amended Complaint.

148. Microchip denies the allegations of Paragraph 148 of the Amended Complaint.

149. Microchip denies the allegations of Paragraph 149 of the Amended Complaint.

150. Microchip denies the allegations of Paragraph 150 of the Amended Complaint.

151. Microchip denies the allegations of Paragraph 151 of the Amended Complaint.

152. Microchip denies the allegations of Paragraph 152 of the Amended Complaint.

APTIV TECHNOLOGIES' PRAYER FOR RELIEF

The Amended Complaint recites a prayer for relief to which no response is required. To the extent a response is required, Microchip denies that Aptiv Technologies is entitled to any relief whatsoever in this action, either as requested in the Amended Complaint or otherwise.

GENERAL DENIAL

Except as specifically admitted herein, Microchip denies the remaining allegations in the Amended Complaint.

AFFIRMATIVE DEFENSES

Under Federal Rule of Civil Procedure 8(c), and without altering any applicable burdens of proof, Microchip asserts the following defenses to the Amended Complaint and reserves the right to assert additional defenses.

FIRST AFFIRMATIVE DEFENSE – FAILURE TO STATE A CLAIM

The Amended Complaint fails to state a claim upon which relief can be granted.

SECOND AFFIRMATIVE DEFENSE – NON-INFRINGEMENT

Microchip has not infringed and does not infringe, directly or indirectly, contributorily or by inducement, any valid and enforceable claim of the Aptiv Patents either literally or under the doctrine of equivalents. Microchip incorporates by reference Counterclaim Paragraphs 25-29, 35-39, 45-49, 55-59, 65-69, and 75-79 below.

THIRD AFFIRMATIVE DEFENSE – INVALIDITY

Claims of the Aptiv Patents are invalid for failure to satisfy the conditions of patentability set forth in 35 U.S.C. § 101, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112. Microchip incorporates by reference Counterclaim Paragraphs 30-34, 40-44, 50-54, 60-64, 70-74, and 80-84 below.

FOURTH AFFIRMATIVE DEFENSE – PROSECUTION HISTORY ESTOPPEL

Aptiv Technologies' claims are estopped, based on statements, representations, and admissions made in the specification of the patent applications, made during prosecution of the patents applications that led to the Aptiv Patents, and/or made during prosecution of related applications, from asserting that the claims of the Aptiv Patents are infringed by Microchip, or by Microchip's products or services, either directly, indirectly, contributorily, through the doctrine of equivalents, or otherwise.

FIFTH AFFIRMATIVE DEFENSE – EQUITABLE DEFENSES

Aptiv Technologies' claims are barred as unenforceable, in whole or in part, under the doctrines of estoppel, acquiescence, waiver, implied license, and/or other equitable defenses. For example, Aptiv Technologies brought this action in retaliation for Microchip asserting its patents against Aptiv Services in the 2017 Action. Further, in connection with settlement negotiations in the 2017 Action in December 2021, Aptiv Services sent Microchip portions of a draft International Trade Commission (“ITC”) complaint, in which Aptiv Services alleged that Microchip infringed the first five Aptiv Patents. Aptiv Services claimed that, if the parties were unable to achieve a settlement, it intended to initiate an action with the ITC based on Microchip’s alleged infringement of Aptiv Technologies’ patents. But the Aptiv entities never filed that ITC action, and Aptiv Technologies delayed almost a year and a half before it filed this suit.

SIXTH AFFIRMATIVE DEFENSE – NO WILLFULNESS

Microchip has not engaged in any conduct that constitutes willful infringement or that would otherwise entitle Aptiv Technologies to an award of enhanced damages under 35 U.S.C. § 284. Microchip does not, did not, and could not believe that it infringes any valid and enforceable claim of the Aptiv Patents either literally or under the doctrine of equivalents.

SEVENTH AFFIRMATIVE DEFENSE – LIMITATION ON DAMAGES

Aptiv Technologies is barred or limited in recovery, in whole or in part, by failing to meet the requirements of 35 U.S.C. §§ 287 and/or 288. For example, Aptiv Technologies is barred or limited in recovery, in whole or in part, by failing to meet the requirements of 35 U.S.C. § 287(a) due to Aptiv Services’ failure to mark products embodying the Aptiv Patents.

EIGHTH AFFIRMATIVE DEFENSE – NO ATTORNEYS’ FEES

Microchip has not engaged in any conduct that would make this an exceptional case or would entitle Aptiv Technologies to an award of attorneys’ fees under 35 U.S.C. § 285.

NINTH AFFIRMATIVE DEFENSE – STATUTE OF LIMITATIONS

Aptiv Technologies is precluded from recovering any damages for any alleged infringement that occurred more than six years prior to the commencement of this action under 35 U.S.C. § 286.

TENTH AFFIRMATIVE DEFENSE – NO INJUNCTIVE RELIEF

No injunctive relief should be awarded because Aptiv Technologies cannot establish entitlement to such relief, and no factor supporting issuance of such relief is present in this case.

ELEVENTH AFFIRMATIVE DEFENSE – REVERSE DOCTRINE OF EQUIVALENTS

Microchip's accused methods, systems, products, and/or features operate and/or are configured in ways substantially different in principle from the purported invention(s) described in the Aptiv Patents, and Aptiv Technologies cannot sustain its burden of proving otherwise.

ADDITIONAL DEFENSES

Microchip's investigation of its defenses is ongoing, and Microchip expressly reserves the right to allege and assert any additional defenses under Rule 8 of the Federal Rules of Civil Procedure, the patent laws of the United States, and any other defense, at law or inequity, that may now exist or may in the future be available based upon discovery and further investigation in this case.

JURY DEMAND

Microchip joins Aptiv Technologies' request for a jury trial on all issues triable by jury.

MICROCHIP'S COUNTERCLAIMS

Under Federal Rule of Civil Procedure 13, Microchip Technology Inc. ("Microchip") submits the following counterclaims against Aptiv Technologies Limited ("Aptiv Technologies") and Aptiv Services US, LLC ("Aptiv Services") (collectively, "Aptiv"), and in support thereof, alleges the following:

NATURE OF THE ACTION

1. Microchip brings the counterclaims that follow for judgment of (1) non-infringement and invalidity of U.S. Patent Nos. 9,619,420 (the “420 Patent”); 9,645,962 (the “962 Patent”); 9,460,037 (the “037 Patent”); 10,545,899 (the “899 Patent”); 11,176,072 (the “072 Patent”); and 11,681,643 (the “643 Patent”) (collectively, the “Aptiv Patents”), and (2) infringement of U.S. Patent Nos. 8,041,874 (the “874 Patent”) (Ex. 1); 7,564,665 (the “665 Patent”) (Ex. 2); and 9,471,074 (the “074 Patent”) (Ex. 3) (collectively, the “Microchip Patents”) under the Patent Laws of the United States of America, 35 U.S.C. § 100, *et seq.*

THE PARTIES

2. Microchip Technology Inc. is a Delaware corporation with a place of business located at 2355 West Chandler Blvd., Chandler, Arizona 85224-6199. Microchip Technology Inc. is the owner of the Microchip Patents.

3. Aptiv Technologies claims to be a Barbados international business company with a principal place of business at The Financial Services Centre, Bishop’s Court Hill, St. Michael, Barbados. Aptiv Technologies claims to be the sole owner of the Aptiv Patents.

4. Upon information and belief, Aptiv Services is a Delaware limited liability company with its principal place of business at 5725 Delphi Dr., Troy, Michigan 48098. Upon information and belief, Aptiv Services wholly or partially directs or controls the making, using, selling, offering to sell, and/or importing of the Dual Role Hub, which Aptiv Technologies claims is an embodiment of the Aptiv Patents that Aptiv Technologies owns.

JURISDICTION AND VENUE

5. This Court has exclusive subject matter jurisdiction over this action pursuant to federal question jurisdiction, 28 U.S.C. §§ 1331 and 1338(a), the Declaratory Judgment Act, 28 U.S.C. §§ 2201-02, and the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*

Furthermore, an actual, substantial, and continuing justiciable controversy exists between Microchip and Aptiv Technologies based on Aptiv Technologies having filed a complaint against Microchip alleging infringement of the Aptiv Patents, with respect to which Microchip requires a declaration of its rights by this Court. The controversy concerns the invalidity and non-infringement of the Aptiv Patents, and the right of Aptiv Technologies to maintain suit for alleged infringement of the Aptiv Patents.

6. The Court has personal jurisdiction over Aptiv Technologies, *inter alia*, because Aptiv Technologies has submitted to the personal jurisdiction of this Court by availing itself of this Court by filing the Amended Complaint. The Court has personal jurisdiction over Aptiv Services because it is a Delaware limited liability company; has continuous and systematic contacts with the State of Delaware, including continuous contacts with, and sales to, customers in Delaware; and has committed acts within Delaware giving rise to this action, directly and through subsidiaries or intermediaries, including distributing, offering for sale, selling, using, importing and/or advertising products and services that infringe the claims of the Microchip Patents in Delaware. Further, Aptiv Services submitted to the personal jurisdiction of this Court in Microchip's prior litigation against Aptiv Services (*Microchip Technology Inc. v. Aptiv Services US, LLC*, Case No. 17-cv-01194-JDW (D. Del.) (the "2017 Action")).

7. Venue is proper in this District as to these counterclaims pursuant to 28 U.S.C. §§ 1391(b)-(c) and 1400(b) because, *inter alia*, Aptiv Technologies has submitted to the venue of this Court by filing its Complaint here. Aptiv Services resides in this district by virtue of being formed and organized in Delaware.

FACTUAL BACKGROUND

A. Microchip

8. Microchip is a leading provider of smart, connected, and secure embedded control solutions. Founded in 1987, it has never ceased innovating. With over 30 years of technology leadership, Microchip's broad product portfolio provides a large portion of the silicon requirements in customers' applications. In key end markets, such as automotive, aerospace and defense, communications, consumer appliances, data centers, and computing, Microchip's synergistic product portfolio empowers disruptive growth trends, including 5G, data centers, artificial intelligence and machine learning, Internet of Things and edge computing, advanced driver-assist systems and autonomous driving, and electric vehicles.

9. Among many products for the automotive industry, Microchip provides USB media hubs for automotive infotainment systems. An automotive infotainment system provides compatibility with personal consumer electronics devices that may be used in vehicles. It also provides drivers with relevant information for safe operation and navigation. Microchip empowers the design and development of infotainment systems that provide intuitive visual, auditory, and tactile interfaces to the vehicle's distributed and networked subsystems.

10. A media hub provides an interface from the vehicle's infotainment system to personal electronic devices such as smartphones and tablets. In addition to providing a data link, the media hub also supplies power to charge the batteries used in these devices. Within Microchip's media hub, its USB Hub Controllers provide port expansion solutions for mixed-speed USB applications. They feature ultra-low power consumption and a small footprint.

11. Microchip's leadership position in USB media hubs comes from its early involvement with car makers to develop solutions and product roadmaps. Microchip's extensive

knowledge of both the consumer and automotive markets allows it to understand trends that enable it to develop products with differentiated features.

B. Microchip's Innovations

12. Microchip's USB products are known for their versatility, simplicity, and convenience. For example, Microchip's compact USB to Ethernet Hub products merge the flexibility provided by USB-based and Ethernet-based networks. They feature fully-integrated high-speed USB 2.0 hubs and ethernet controllers, providing a high-performance and cost-effective USB to Ethernet connectivity solution. Microchip disclosed and claimed the USB to Ethernet Hub in the '874 Patent, titled "USB and Ethernet Controller Combination Device."

13. As further detailed below, Aptiv Services' Dual Role Hub infringes at least claim 25 of the '874 Patent.

14. Further, Microchip invented a robust structure to overcome electrostatic discharge (ESD) issues in, among other things, USB products. In particular, USB products contain integrated circuits that, in recent years, are increasingly designed to have a higher density of internal components and lower operating power supply voltage levels. As a result, integrated circuits are becoming more sensitive to the effects of ESD. ESD often originates from build-up of static charge near the integrated circuit or on a human handling it, leading to high current discharge for a short duration that may disable the integrated circuits. ESD thus poses a serious problem for USB hubs.

15. Microchip's innovative structure includes electrical pads (*e.g.*, digital I/O pads) that can absorb the energy of an ESD event and reduce the peak voltage experienced by the integrated circuit in a USB hub. Microchip disclosed and claimed this invention in the '665 Patent, titled "Pad ESD Spreading Technique."

16. As further detailed below, Aptiv Services' Dual Role Hub product infringes at least claim 14 of the '665 Patent.

17. Microchip also supports its USB products with innovative power management solutions. Power management is vital in USB devices that require efficient power consumption and precision. One such power management tool is a linear low-dropout voltage regulator. In simple terms, voltage regulators provide a stable output voltage independent of load, input-voltage variations, temperature, and time. "Low-dropout" voltage regulators can maintain such regulation even where the difference between supply voltage and load voltage is small.

18. Low-dropout voltage regulators often rely on feedback loops, including a large external "compensating" capacitor to stabilize the operation of the circuit. However, the operation of such circuits is further dependent on the equivalent series resistance ("ESR") attributable to the compensating capacitor, which can vary significantly depending on the characteristics of the capacitor, manufacturing variances, and the topology of the circuit connecting the capacitor.

19. To address this issue, Microchip invented a low-dropout voltage regulator design that permits the use of significantly smaller compensating capacitors and allows for a wider range of ESR, increasing circuit board layout efficiency and allowing greater flexibility in the range of suitable compensating capacitors. Microchip disclosed and claimed this invention in the '074 Patent, titled "USB Regulator with Current Buffer to Reduce Compensation Capacitor Size and Provide for Wide Range of ESR Values of External Capacitor."

20. As further detailed below, Aptiv Services' Dual Role Hub product infringes at least claim 1 of the '074 Patent.

C. Aptiv Services' Knowledge of the Microchip Patents

21. Upon information and belief, Aptiv Services routinely evaluates IP risks associated with launching products. For example, in or around 2012, Aptiv Services conducted a search for patents relating to USB hub technology as part of an effort to evaluate the “IP risk” associated with its initial launch of the Dual Role Hub. During that search, Aptiv Services specifically targeted patents belonging to Standard Microsystems Corporation (later acquired by Microchip) and reviewed those patents in detail. The '665 and '874 Patents were both Standard Microsystems Corporation patents that involved USB hub technologies and that issued before 2012. Upon information and belief, Aptiv Services thus knew of the '665 and '874 Patents as early as 2012. At minimum, Aptiv Services has known of the '665 and '874 Patents since the June 8, 2023 scheduling conference in this case during which Microchip's counsel stated that Microchip intended to assert claims for infringement of those patents against Aptiv Services. Upon information and belief, as a result of its detailed review of the '665 and '874 Patents, Aptiv Services knew that its Dual Role Hub infringed them as early as 2012—and at minimum no later than June 8, 2023.

22. Since the initial release of the Dual Role Hub, Aptiv Services has launched new generations of the product and/or the Boston chip within it. Upon information and belief, Aptiv Services has continued to conduct patent searches and detailed reviews of patents in anticipation of the launch of those new generations. Such searches would have revealed Microchip's '074 Patent, which claims technology used in USB hubs and issued on October 18, 2016. Upon information and belief, Aptiv Services thus knew of the '074 Patent prior to the filing of Microchip's May 11, 2023 counterclaims. At minimum, Aptiv Services has known of the '074 Patent since Microchip filed its Answer and Counterclaims on May 11, 2023. Upon information

and belief, as a result of its detailed review of the '074 Patent, Aptiv Services knew that its Dual Role Hub infringed the '074 Patent prior to—and at minimum no later than—the filing of Microchip's May 11, 2023 counterclaims.

D. This Action

23. Aptiv Technologies filed its Complaint in this action in the District of Delaware on March 20, 2023, accusing Microchip of direct, indirect, and willful infringement of five of the Aptiv Patents (excluding the '643 Patent) by Microchip's Sandia products—including USB4912, USB4914, and USB4916 (collectively, the "Microchip Accused Products"). In its June 23, 2023 Amended Complaint, Aptiv Technologies added the '643 Patent. All of the Aptiv Patents claim priority to the provisional application No. 61/882,915, filed on September 26, 2013 by Unwired Technology LLC ("Unwired") before it was acquired by an Aptiv entity. Aptiv Technologies claims that the Dual Role Hub product is an embodiment of those patents.

24. As further detailed below, Microchip does not infringe any claim of any of the Aptiv Patents, and the Aptiv Patents are invalid.

FIRST COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT)
U.S. Patent No. 9,619,420

25. Microchip repeats and incorporates by reference Paragraphs 1 through 24 above as though fully set forth herein.

26. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '420 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '420 Patent.

27. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '420 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

28. For example, the Microchip Accused Products do not contain “a USB routing switch interconnected to the USB bridge, the USB hub, and the second USB port, wherein the USB routing switch is configured to connect the second USB port to the first USB port through the USB bridge, thereby providing bidirectional initiation of communication between the USB host and the consumer device when the consumer device connected to the second USB port is in a USB host mode and wherein the USB routing switch is configured to connect the second USB port directly to the first USB port through the USB hub, thereby only responding to communication initiated by the USB Host when the consumer device connected to the second USB port is in a USB device mode.”

29. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '420 Patent.

SECOND COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY)
U.S. Patent No. 9,619,420

30. Microchip repeats and incorporates by reference Paragraphs 1 through 29 above as though fully set forth herein.

31. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '420 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '420 Patent.

32. One or more of the claims of the '420 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

33. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437), alone or in combination with each other, invalidate one or more claims of the '420 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

34. Microchip therefore seeks a declaration that one or more of the claims of the '420 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

THIRD COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT) U.S. Patent No. 9,645,962

35. Microchip repeats and incorporates by reference Paragraphs 1 through 34 above as though fully set forth herein.

36. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '962 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '962 Patent.

37. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '962 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

38. For example, the Microchip Accused Products do not contain “a USB routing switch interconnected to the USB bridge, the USB hub, and the plurality of downstream USB ports, wherein the USB routing switch is configured to connect a first downstream USB port of the plurality of downstream USB ports to the upstream USB port through the USB bridge when a consumer device connected to the first downstream USB port is the USB host and is configured to initiate bidirectional communication with the upstream USB port, and wherein the USB routing switch is configured to connect the first downstream USB port directly to the USB hub when the consumer device connected to the first downstream USB port is configured to only respond to communication from the upstream USB port, thereby rendering the consumer device compatible with a device connected to the upstream USB port.”

39. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '962 Patent.

FOURTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY) **U.S. Patent No. 9,645,962**

40. Microchip repeats and incorporates by reference Paragraphs 1 through 39 above as though fully set forth herein.

41. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '962 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '962 Patent.

42. One or more of the claims of the '962 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

43. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437), alone or in combination with each other, invalidate one or more claims of the '962 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

44. Microchip therefore seeks a declaration that one or more of the claims of the '962 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

FIFTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT) U.S. Patent No. 9,460,037

45. Microchip repeats and incorporates by reference Paragraphs 1 through 44 above as though fully set forth herein.

46. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '037 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '037 Patent.

47. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '037 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

48. For example, the Microchip Accused Products do not contain “a USB Bridge interconnected to the USB Hub and configured to connect the embedded USB Host system to a second USB Host; and a USB routing switch interconnected to the USB Bridge, the USB Hub, and the plurality of USB Ports, wherein the USB routing switch is configured to connect a first USB Port of the plurality of USB Ports to the USB Hub through the USB Bridge when a consumer device connected to the USB Port is the second USB Host and is configured to initiate bidirectional communication with the embedded USB Host, and wherein the USB routing switch is configured to connect the first USB Port directly to the USB Hub when the consumer device connected to the first USB Port is configured to only respond to communication from the embedded USB Host, thereby rendering the consumer device compatible with the embedded USB Host system.”

49. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '037 Patent.

SIXTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY)
U.S. Patent No. 9,460,037

50. Microchip repeats and incorporates by reference Paragraphs 1 through 49 above as though fully set forth herein.

51. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '037 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '037 Patent.

52. One or more of the claims of the '037 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

53. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437), alone or in combination with each other, invalidate one or more claims of the '037 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

54. Microchip therefore seeks a declaration that one or more of the claims of the '037 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

SEVENTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT) U.S. Patent No. 10,545,899

55. Microchip repeats and incorporates by reference Paragraphs 1 through 54 above as though fully set forth herein.

56. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '899 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '899 Patent.

57. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '899 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

58. For example, the Microchip Accused Products do not “automatically configure[e] the USB routing switch to initiate bidirectional communication with the USB host, wherein the USB routing switch is configured to connect the first USB port directly to the USB hub when the consumer device connected to the first USB port is configured to only respond to communication from the USB host, thereby rendering the consumer device compatible with the USB host.”

59. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '899 Patent.

EIGHTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY) U.S. Patent No. 10,545,899

60. Microchip repeats and incorporates by reference Paragraphs 1 through 59 above as though fully set forth herein.

61. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '899 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '899 Patent.

62. One or more of the claims of the '899 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

63. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437),

alone or in combination with each other, invalidate one or more claims of the '899 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

64. Microchip therefore seeks a declaration that one or more of the claims of the '899 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

NINTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT)
U.S. Patent No. 11,176,072

65. Microchip repeats and incorporates by reference Paragraphs 1 through 64 above as though fully set forth herein.

66. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '072 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '072 Patent.

67. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '072 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

68. For example, the Microchip Accused Products do not "rout[e] the first USB signal via the USB multiplexing switches from the USB device to the embedded USB host through the USB bridge and the USB hub."

69. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '072 Patent.

TENTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY)
U.S. Patent No. 11,176,072

70. Microchip repeats and incorporates by reference Paragraphs 1 through 69 above as though fully set forth herein.

71. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '072 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '072 Patent.

72. One or more of the claims of the '072 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

73. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437), alone or in combination with each other, invalidate one or more claims of the '072 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

74. Microchip therefore seeks a declaration that one or more of the claims of the '072 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

ELEVENTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF NON-INFRINGEMENT)
U.S. Patent No. 11,681,643

75. Microchip repeats and incorporates by reference Paragraphs 1 through 74 above as though fully set forth herein.

76. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the infringement of the '643 Patent. In particular, Aptiv Technologies alleges that Microchip infringes the '643 Patent.

77. Microchip has not directly infringed, contributed to, or induced infringement of any valid or enforceable claim of the '643 Patent and has not otherwise committed any acts in violation of 35 U.S.C. § 271.

78. For example, the Microchip Accused Products do not "provid[e] a signal detection circuit for receiving USB signals from the consumer USB device via the second USB port."

79. Microchip therefore seeks a declaration that it has not infringed, and does not infringe, literally or under the doctrine of equivalents, directly or indirectly, any valid and enforceable claim of the '643 Patent.

TWELFTH COUNTERCLAIM

(DECLARATORY JUDGMENT OF INVALIDITY) U.S. Patent No. 11,681,643

80. Microchip repeats and incorporates by reference Paragraphs 1 through 79 above as though fully set forth herein.

81. As a result of at least the allegations contained in the Amended Complaint, an actual and justiciable controversy exists between Microchip and Aptiv Technologies concerning the validity of the '643 Patent. In particular, Aptiv Technologies alleges that Microchip infringes at least one valid claim of the '643 Patent.

82. One or more of the claims of the '643 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*, including, but not limited to, §§ 101, 102, 103, and 112.

83. For example, Bohm (U.S. Patent No. 7,478,191), Chang (U.S. Patent Application Publication No. US2006/0206650), Chang (U.S. Patent Application Publication US2009/0268743), and/or Yamada (Japanese Patent Application Publication No. JP2010093437), alone or in combination with each other, invalidate one or more claims of the '643 Patent, at least under Aptiv Technologies' apparent construction of the asserted claims.

84. Microchip therefore seeks a declaration that one or more of the claims of the '643 Patent are invalid for failing to meet the conditions for patentability as set forth in 35 U.S.C. § 1, *et seq.*

THIRTEENTH COUNTERCLAIM

**(INFRINGEMENT BY APTIV SERVICES)
U.S. Patent No. 8,041,874**

85. Microchip repeats and incorporates by reference Paragraphs 1 through 84 above as though fully set forth herein.

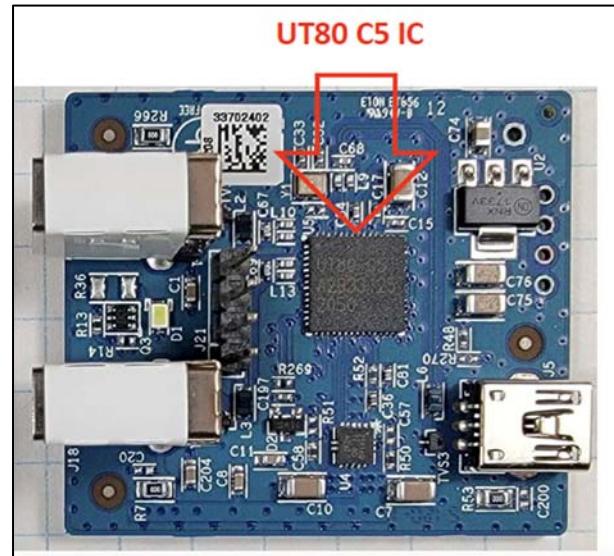
86. Aptiv Services has directly infringed and continues to directly infringe the '874 Patent at least by making, using, testing, offering to sell, selling, and/or importing into the United States products, such as Aptiv's Dual Role Hub, that contain Boston-2 chips, prototypes of the same, as well as earlier and later generations of the same (collectively, the "Aptiv Accused Products"), or by directing or controlling others to make, use, test, offer to sell, sell, and/or import into the United States those products.

87. The Aptiv Accused Products infringe at least claim 25 of the '874 Patent. For example, the Aptiv Accused Products use an on-chip Ethernet controller permanently coupled to a USB hub circuit to facilitate bridging between two USB hosts (e.g., a vehicle head unit and an iPhone). For at least the reasons detailed below—based on publicly available information, a

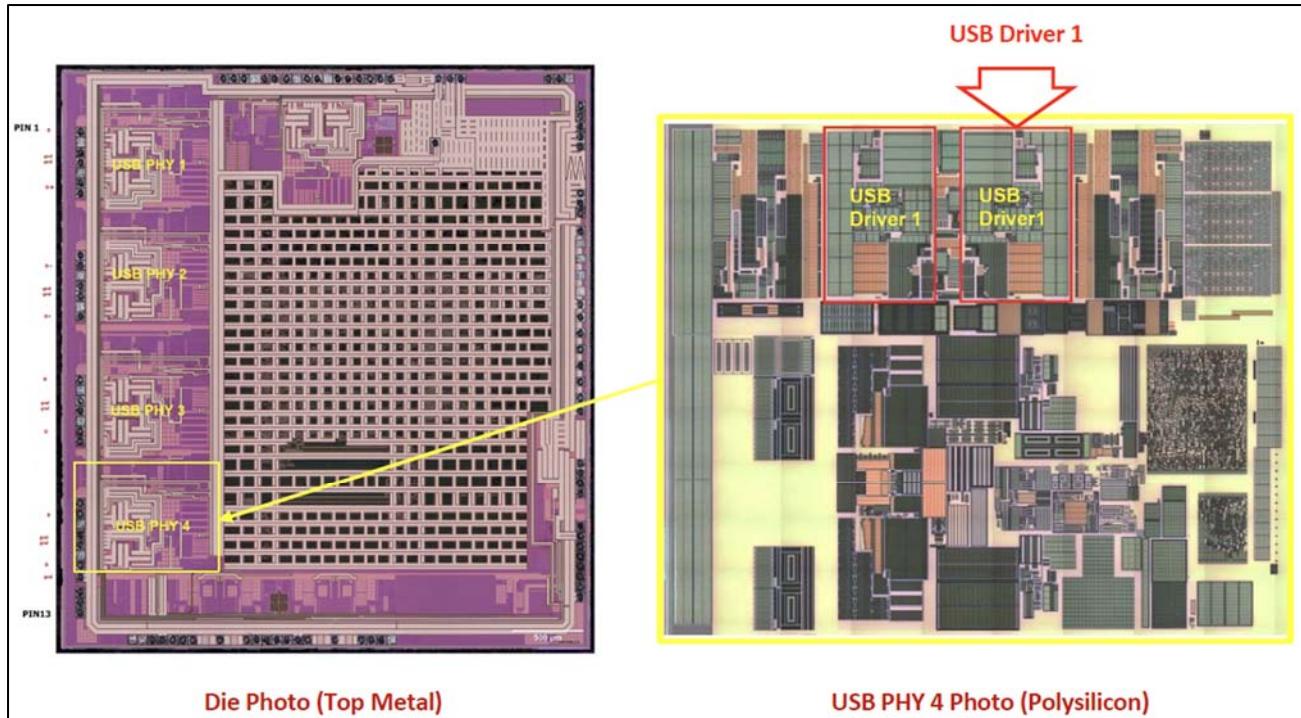
teardown of the Boston-2 chip, and a USB traffic analysis performed on Aptiv's Dual Role Hub in a vehicle using a USB traffic analyzer—the Boston-2 chip practices each limitation of claim 25.

88. The Boston-2 chip is an “integrated circuit (IC)” because it is a chip.

89. The Boston-2 chip includes “a USB (Universal Serial Bus) hub circuit configured to transmit/receive the data to/from a host, and comprising an internal downstream port.” As the below images of the Dual Role Hub (the overall board/package below) and Boston-2 chip (“UT80 C5 IC” below) demonstrate, the Boston-2 chip includes a USB hub with multiple downstream ports.



90. As shown in the below teardown images of the Boston-2 chip, the Boston-2 chip includes internal USB ports (USB PHY1 to PHY 4). Because a USB hub communicates between upstream and downstream ports, at least one of these ports is an internal downstream port.



91. The Boston-2 chip includes “an Ethernet controller circuit configured to transmit/receive data to/from a network.” Microchip’s USB traffic analyzer testing demonstrated that, to facilitate host-to-host communication with an iPhone, the Boston-2 chip routes at least certain communications from host-to-iPhone via a “Network Control Module” connected to a downstream USB port. The “Network Control Module” in turn transmits Ethernet data to/from a network that sits between the Network Control Module and the iPhone.

92. The Boston-2 chip includes “a digital interface configured to couple the USB hub circuit to the Ethernet controller circuit through the internal downstream port, and configured to manage data exchange between the USB hub and the Ethernet controller.” The Network Control Module circuit must be connected to the USB hub through a digital interface to facilitate communications. Thus, the digital interface must manage data exchange between the USB hub and the Ethernet controller for the two to communicate.

93. The Ethernet controller in the Boston-2 chip “appears to the host as a permanently attached device on the internal downstream port.” The Boston-2 chip does not include any detachable components. Thus, the Network Control Module circuit must be permanently attached on a downstream port of the hub, and must also appear to the host to be permanently attached on a downstream port of the hub.

94. Upon information and belief, Aptiv Services has known that the Aptiv Accused Products infringe the '874 Patent as early as 2012 through its detailed review of Microchip's USB patent portfolio, and no later than the June 8, 2023 scheduling conference in this case during which Microchip's counsel stated that Microchip intended to assert claims for infringement of the '874 Patent against the Dual Role Hub. At least since the date when Aptiv Services learned of the '874 Patent, Aptiv Services' infringement of the '874 Patent has been willful and deliberate.

95. Aptiv Services also indirectly infringes the '874 Patent. Aptiv Services has induced and continues to induce the infringement of the '874 Patent by its customers, auto manufacturers, distributors, dealers, and/or infotainment system end users, knowing through its detailed review of Microchip's USB patent portfolio that its actions would induce such infringement.

96. Aptiv Services actively encourages its customers, auto manufacturers, and/or end users to infringe claims of the '874 Patent by providing the Aptiv Accused Products, and advertising and advising its customers and auto manufacturers how to incorporate the Aptiv Accused Products into an infotainment system and/or automobile in a manner that infringes the '874 Patent.

97. On information and belief, Aptiv Services will continue to infringe and induce infringement of the '874 Patent, unless enjoined by this Court.

98. As a result of Aptiv Services' infringement of the '874 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

99. Microchip is entitled to recover damages for pre-suit infringement because it has complied with 35 U.S.C. § 287.

100. As a result of Aptiv Services' infringement of the '874 Patent, Microchip has suffered and will continue to suffer irreparable harm, unless Aptiv Services is enjoined against such acts by this Court.

101. As a result of at least Aptiv Services' willful infringement of the '874 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

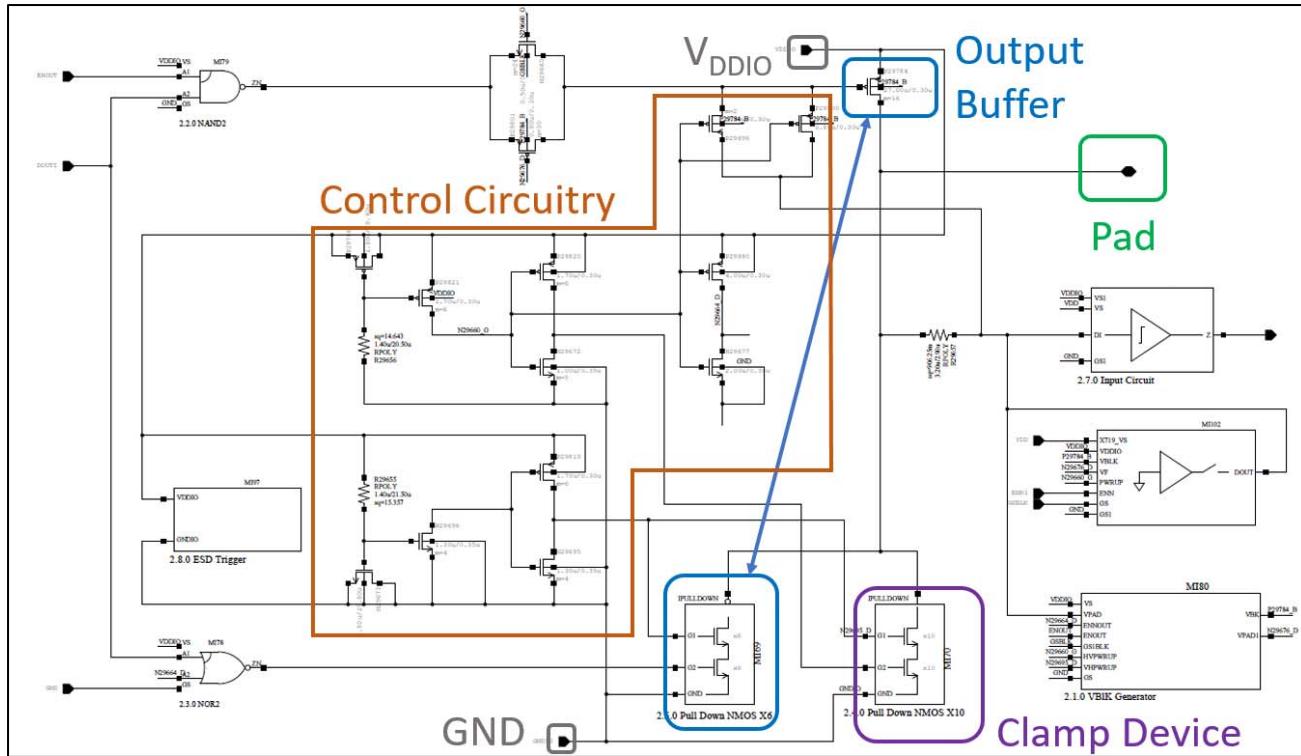
FOURTEENTH COUNTERCLAIM

(INFRINGEMENT BY APTIV SERVICES) U.S. Patent No. 7,564,665

102. Microchip repeats and incorporates by reference Paragraphs 1 through 101 above as though fully set forth herein.

103. Aptiv Services has directly infringed and continues to directly infringe the '665 Patent at least by making, using, testing, offering to sell, selling, and/or importing into the United States the Aptiv Accused Products, or by directing or controlling others to make, use, test, offer to sell, sell, and/or import into the United States those products.

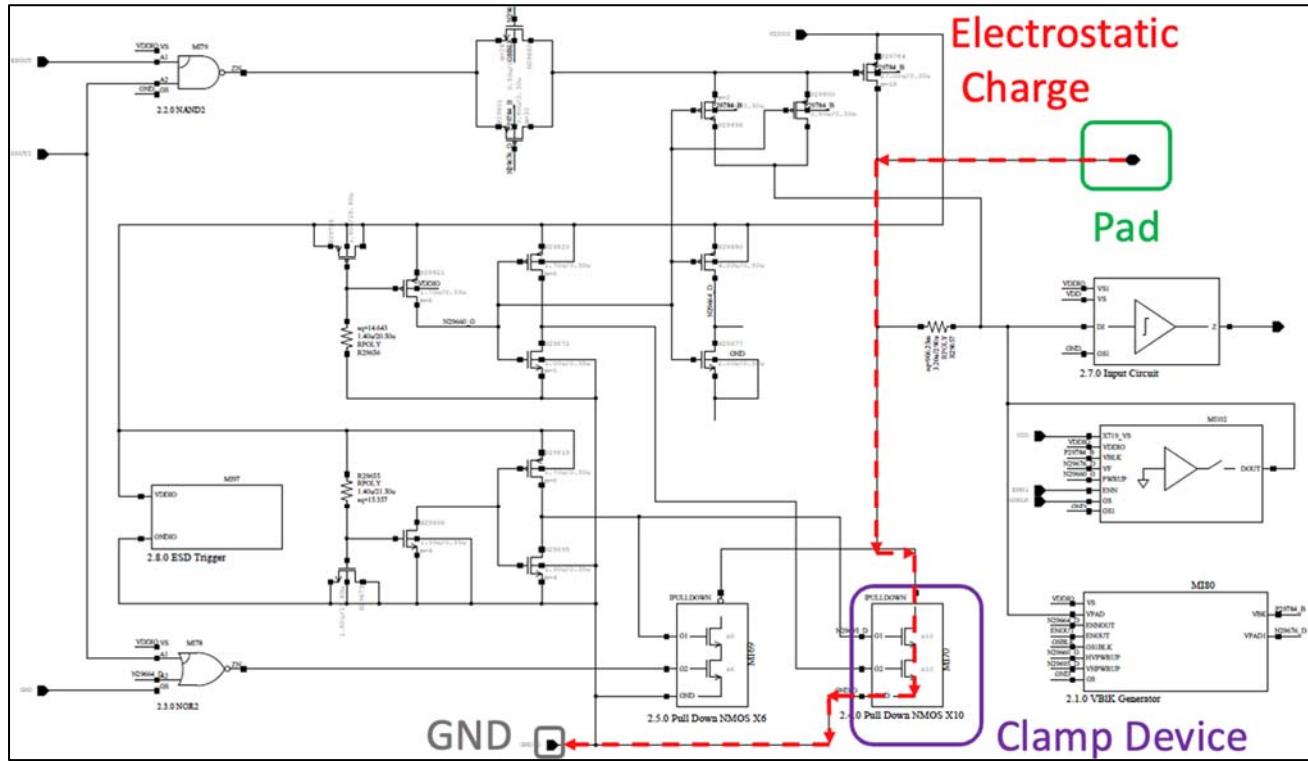
104. The Aptiv Accused Products infringe at least claim 14 of the '665 Patent. For example, the following circuit schematics derived from a teardown of the Boston-2 chip demonstrate that the Boston-2 chip includes ESD protection circuitry. The Boston-2 chip contains multiple input/output pads, each of which is connected to an instance of the following circuitry. All instances of this circuitry are interconnected by a common V_{DDIO} and a common GND.



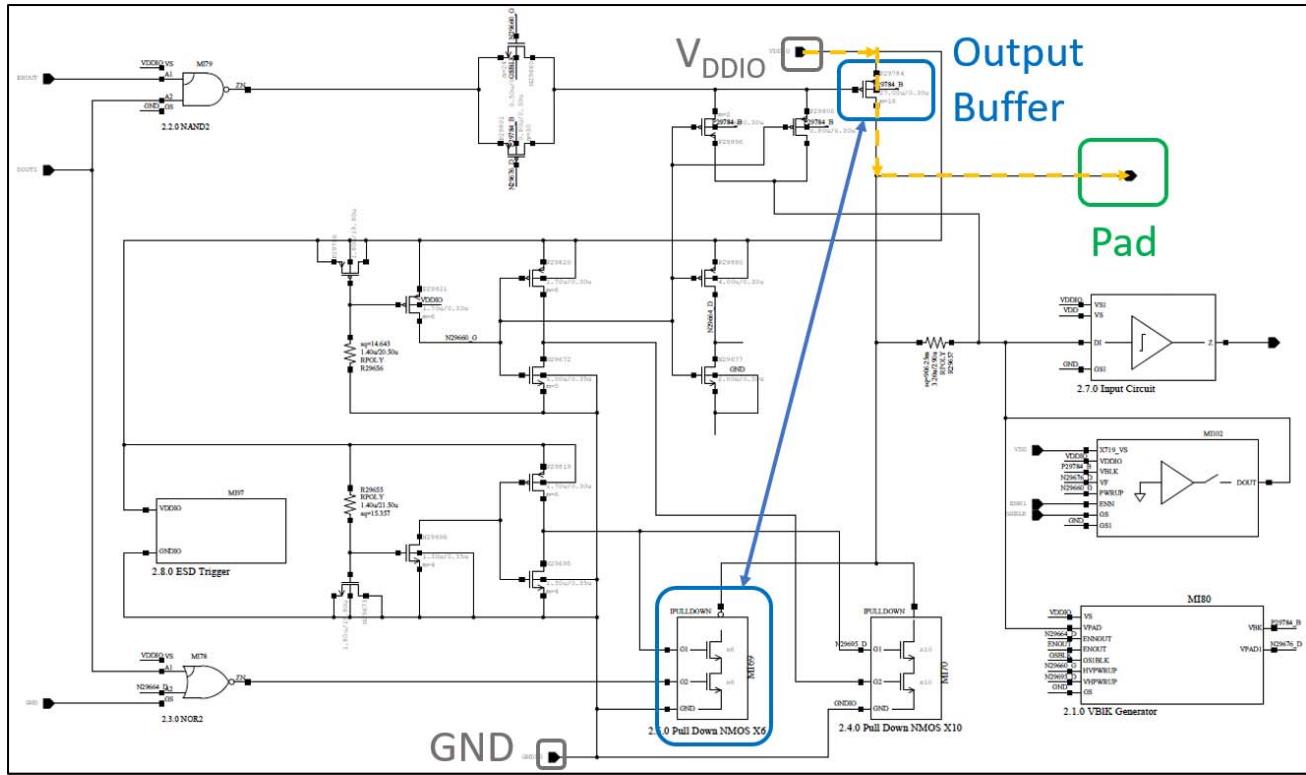
105. As demonstrated in the foregoing schematic, the ESD protection circuitry of the Boston-2 chip contains every element of at least claim 14 of the '665 Patent. The ESD protection circuitry of the Boston-2 chip contains "one or more pads" (the entire circuit above), "a respective physical pad having respective capacitance" (green above), "a respective clamp device" (purple above), "a respective pad circuit" (all elements above aside from the physical pad), "a respective output buffer" (blue above), and "respective control circuitry" (dark orange above).

106. The “respective clamp device” (purple below) is “configured to absorb, when turned on, a portion of an energy generated by an ESD event, to thereby further reduce the maximum voltage developed in the system as a result of the ESD event.” When the transistors comprising the clamp device are enabled, the clamp shorts the pad (green below) to GND, as shown below. This clamp device absorbs a portion of the energy generated by the ESD event on the pad by creating an electrical path from the pad to GND. Dissipation of the electrostatic charge

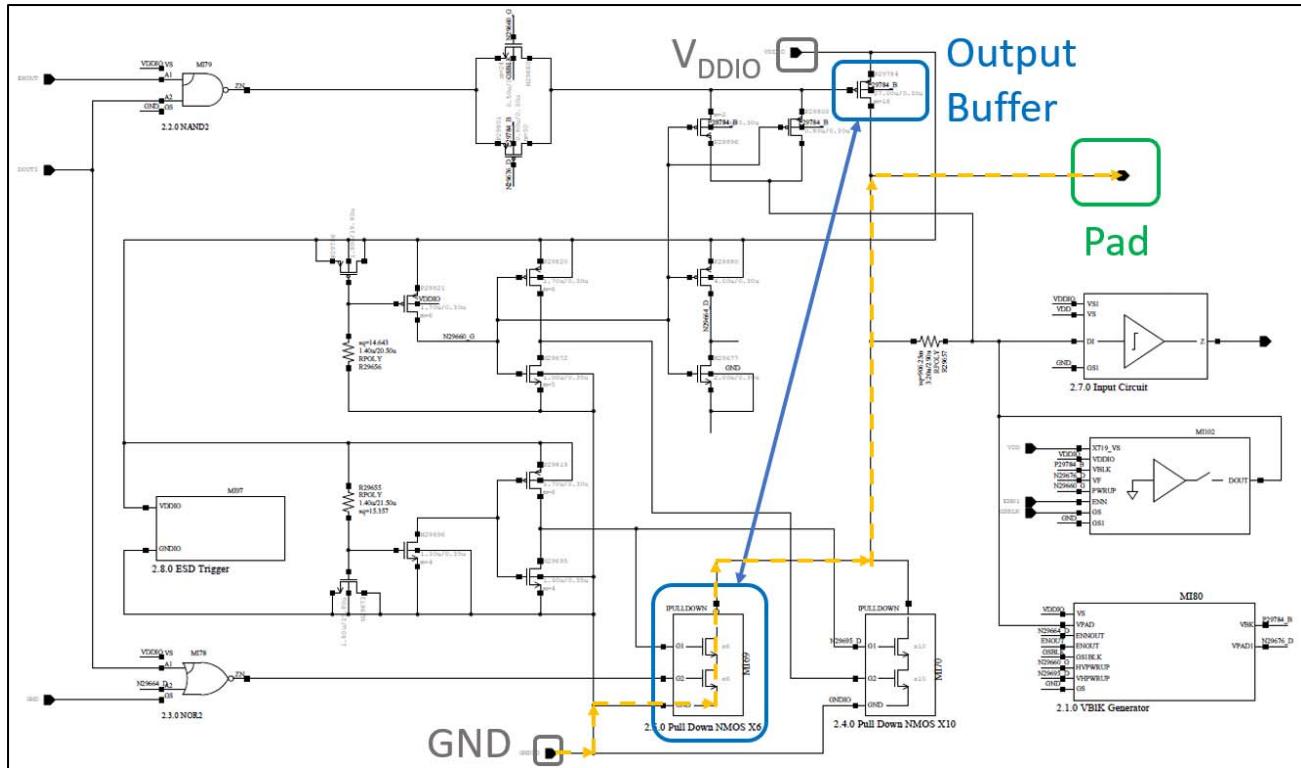
(dashed red line below) through this channel reduces the maximum voltage developed in the system by the ESD event.



107. The output buffer is “coupled to the respective physical pad, and operable to drive at least one respective output signal at the respective physical pad.” When the PMOS transistor of the output buffer (blue below) is enabled, the output buffer creates an electrical path (dashed yellow line below) from V_{DDIO} to the pad (green below), as depicted below.

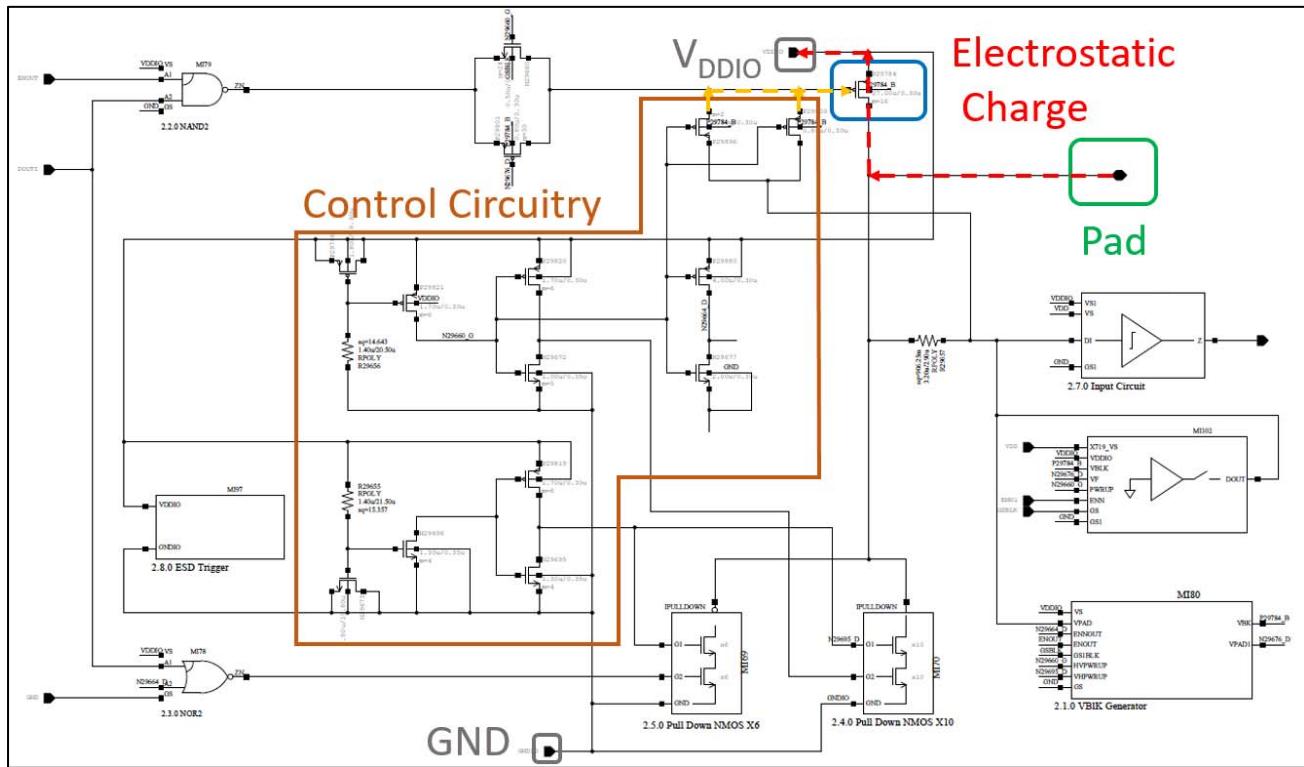


108. Similarly, when the two NMOS transistors of the output buffer (blue below) are enabled, the output buffer creates a path (dashed yellow line below) from GND to the pad (green below), as depicted below.



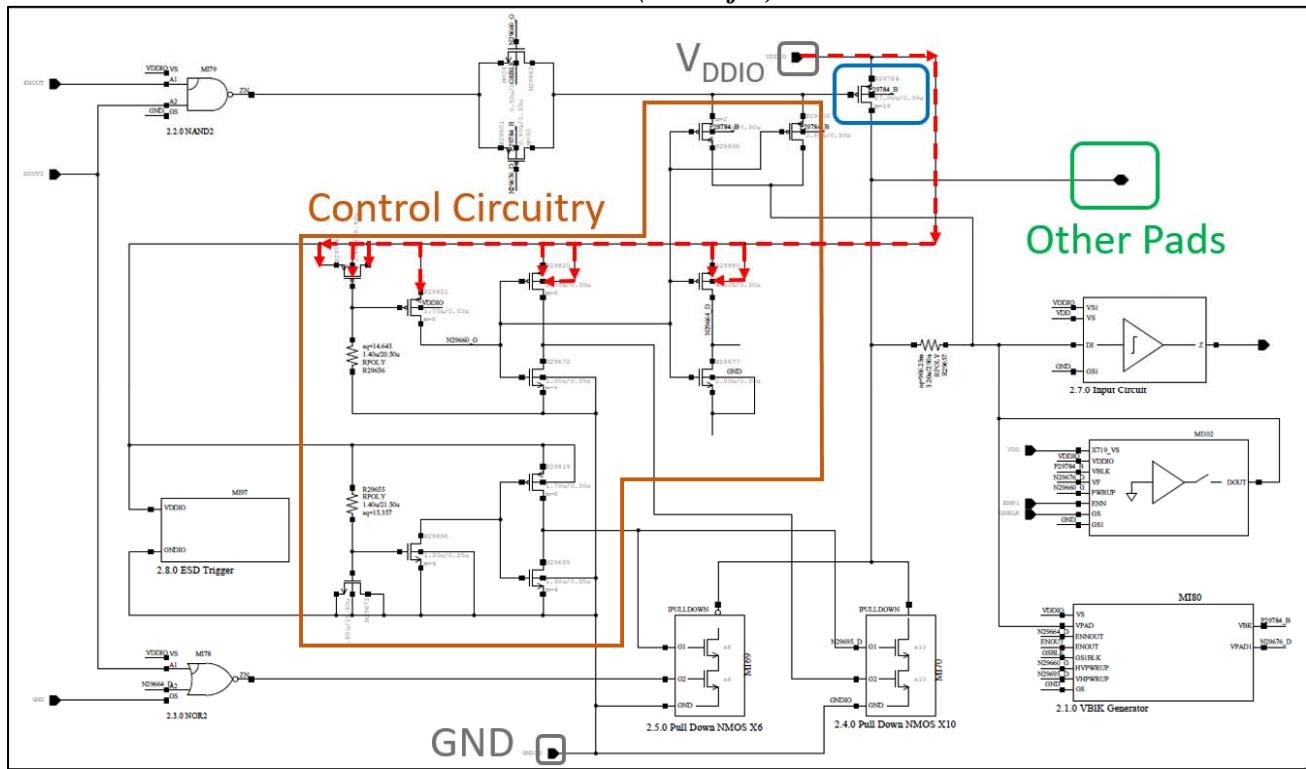
109. Thus, by selectively enabling either the PMOS transistors or the NMOS transistors, the output buffer drives at output signal at the pad.

110. The control circuitry is operable to “activate at least a portion of the respective output buffer in response to an ESD event to charge the respective pad capacitance to reduce a maximum voltage developed in the system as a result of the ESD event.” During an ESD event, the control circuitry (dark orange below) activates the PMOS transistor of the output buffer (blue below), which in turn creates an electrical path (dashed red line below) between the pad (green below) and the **V_{DDIO}** line, which in turn is connected to additional instances of the ESD circuitry corresponding to other pads (dashed yellow line below).

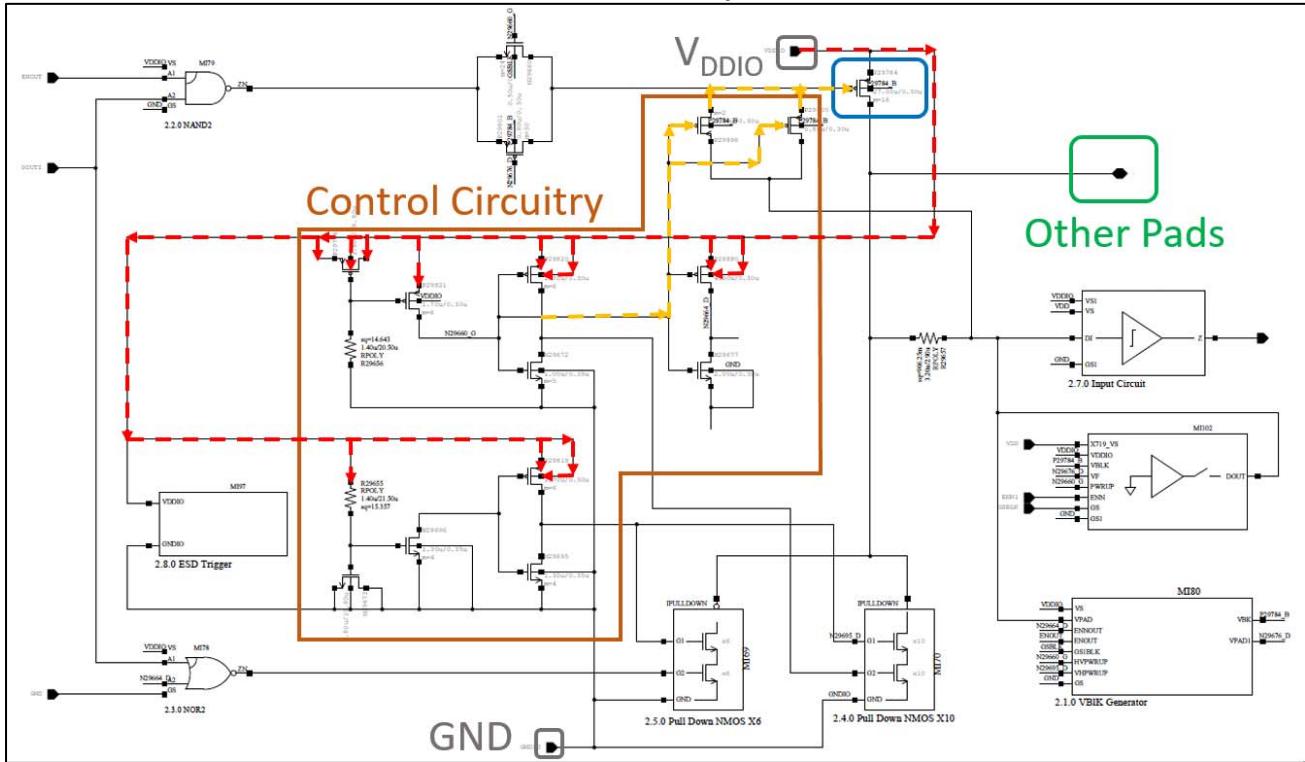
Pad Where ESD Event Occurs

111. When the electrostatic charge arrives at the control circuitry for the other pads, it activates (dashed red line below) their control circuitry (dark orange below), as depicted below.

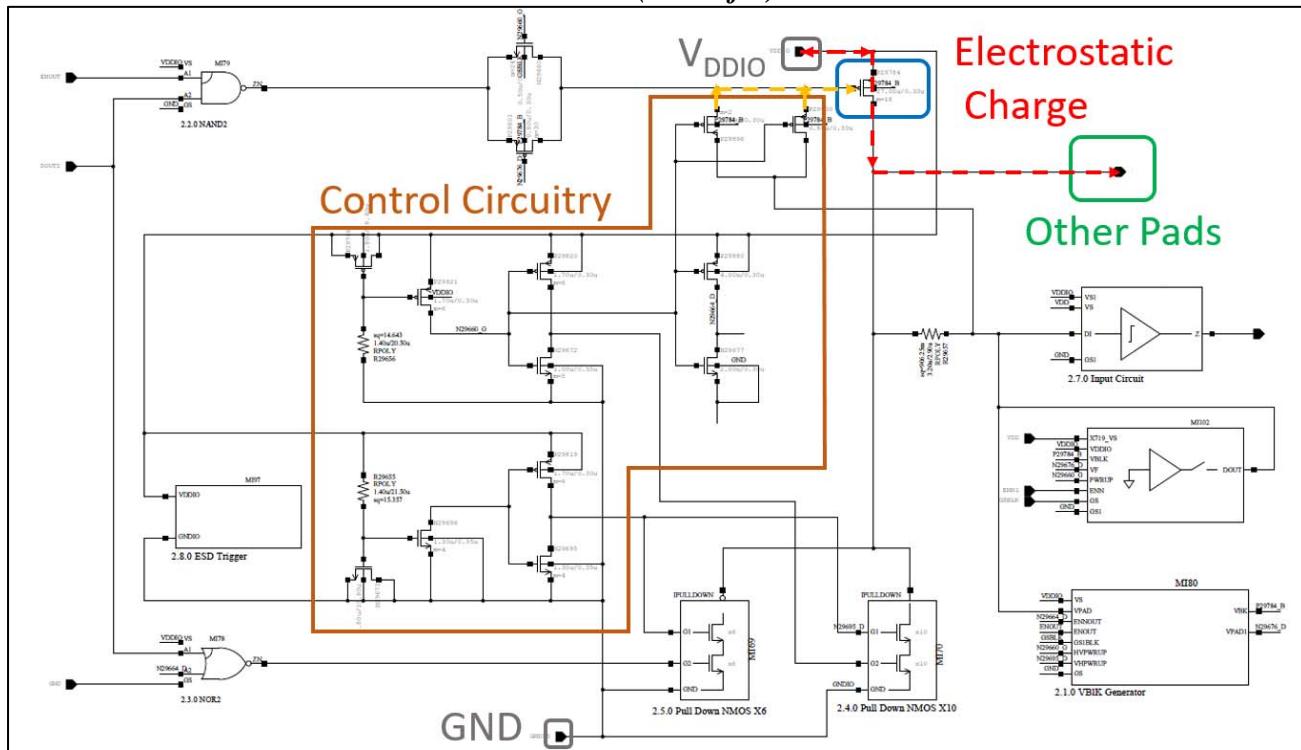
Other Pads (Pt. 1 of 3)



112. The control circuitry (dark orange below) of the other pads (green below) then enables the PMOS transistors of their respective output buffers (blue below), as shown below.

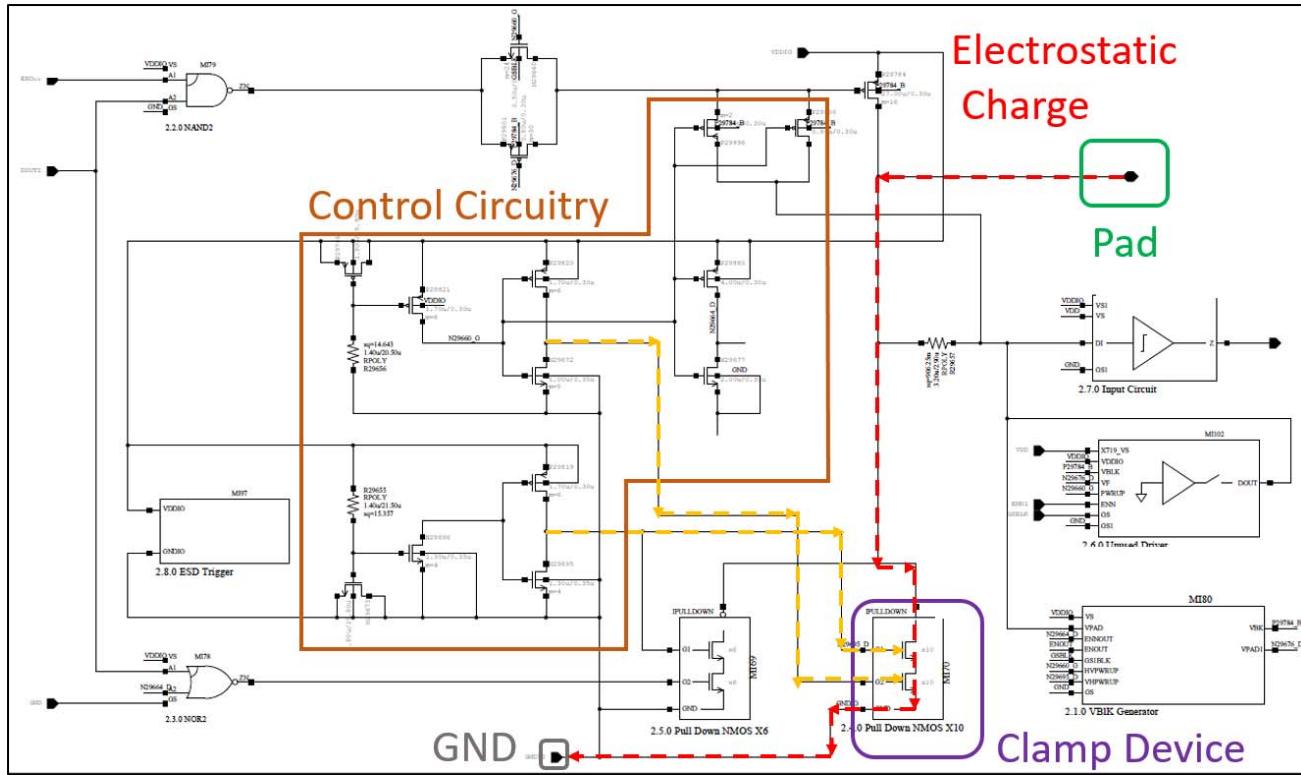
Other Pads (Pt. 2 of 3)

113. The PMOS transistors of the output buffers (blue below) then open electrical paths (dashed red line below) from the VDDIO line to each pad (green below), allowing a portion of electrostatic charge to discharge to each pad, as shown below.

Other Pads (Pt. 3 of 3)

114. In so doing, the Boston-2 chip charges the combined capacitance of all pads in the system (*i.e.*, divides the charge among all pads) to reduce the maximum voltage developed as a result of the ESD event.

115. Finally, the control circuitry is operable to “turn on the clamp device in response to the ESD event.” During an ESD event, the control circuitry (dark orange below) enables (yellow below) both NMOS transistors of the clamp (purple below) to create an electrical path (dashed red line below) from the pad (green below) to GND, as shown below:



116. Upon information and belief, Aptiv Services has known that the Aptiv Accused Products infringe the '665 Patent as early as 2012 through its detailed review of Microchip's USB patent portfolio, and no later than the June 8, 2023 scheduling conference in this case during which Microchip's counsel stated that Microchip intended to assert claims for infringement of the '665 Patent against the Dual Role Hub. At least since the date when Aptiv Services learned of the '665 Patent, Aptiv Services' infringement of the '665 Patent has been willful and deliberate.

117. Aptiv Services also indirectly infringes the '665 Patent. Aptiv Services has induced and continues to induce the infringement of the '665 Patent by its customers, auto manufacturers, distributors, dealers, and/or infotainment system end users, knowing through its detailed review of Microchip's USB patent portfolio that its actions would induce such infringement.

118. Aptiv Services actively encourages its customers, auto manufacturers, and/or end users to infringe claims of the '665 Patent by providing the Aptiv Accused Products, and

advertising and advising its customers and auto manufacturers how to incorporate the Aptiv Accused Products into an infotainment system and/or automobile in a manner that infringes the '665 Patent.

119. On information and belief, Aptiv Services will continue to infringe and induce infringement of the '665 Patent unless enjoined by this Court.

120. As a result of Aptiv Services' infringement of the '665 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

121. Microchip is entitled to recover damages for pre-suit infringement because it has complied with 35 U.S.C. § 287.

122. As a result of Aptiv Services' infringement of the '665 Patent, Microchip has suffered and will continue to suffer irreparable harm, unless Aptiv Services is enjoined against such acts by this Court.

123. As a result of at least Aptiv Services' willful infringement of the '665 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

FIFTEENTH COUNTERCLAIM

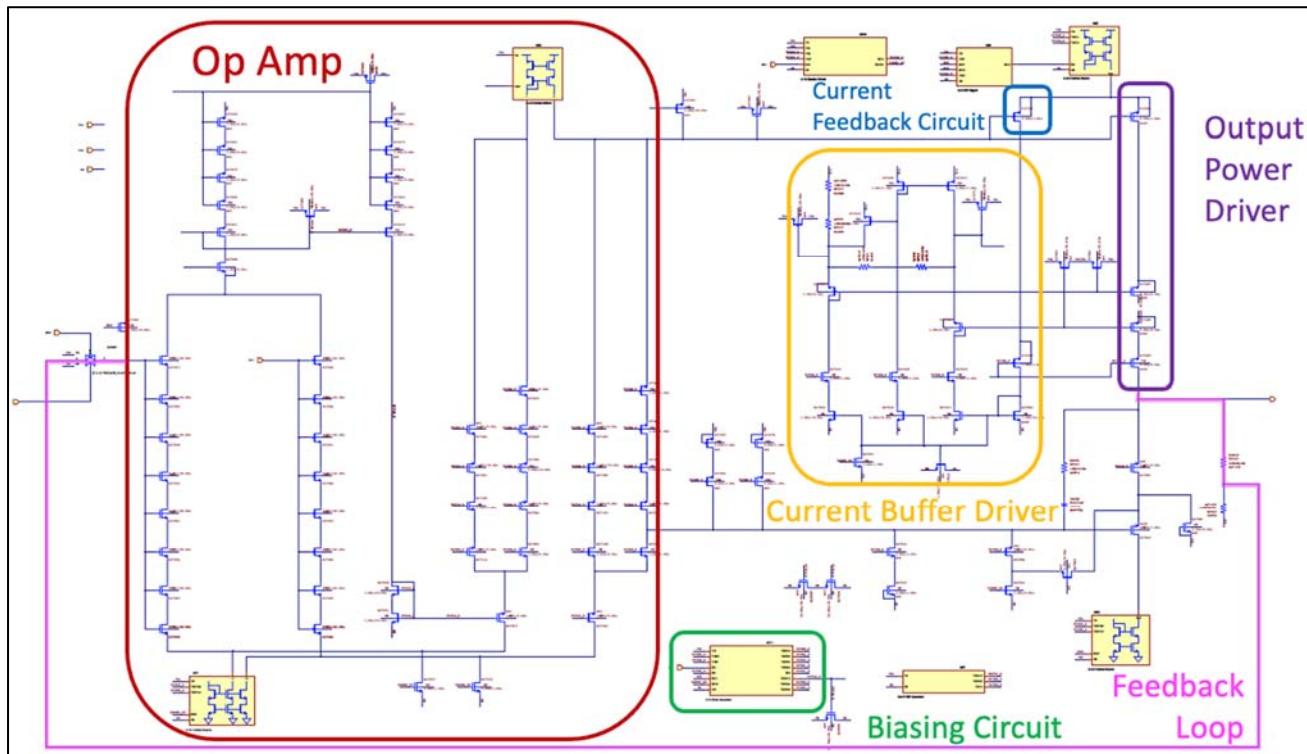
**(INFRINGEMENT BY APTIV SERVICES)
U.S. Patent No. 9,471,074**

124. Microchip repeats and incorporates by reference Paragraphs 1 through 123 above as though fully set forth herein.

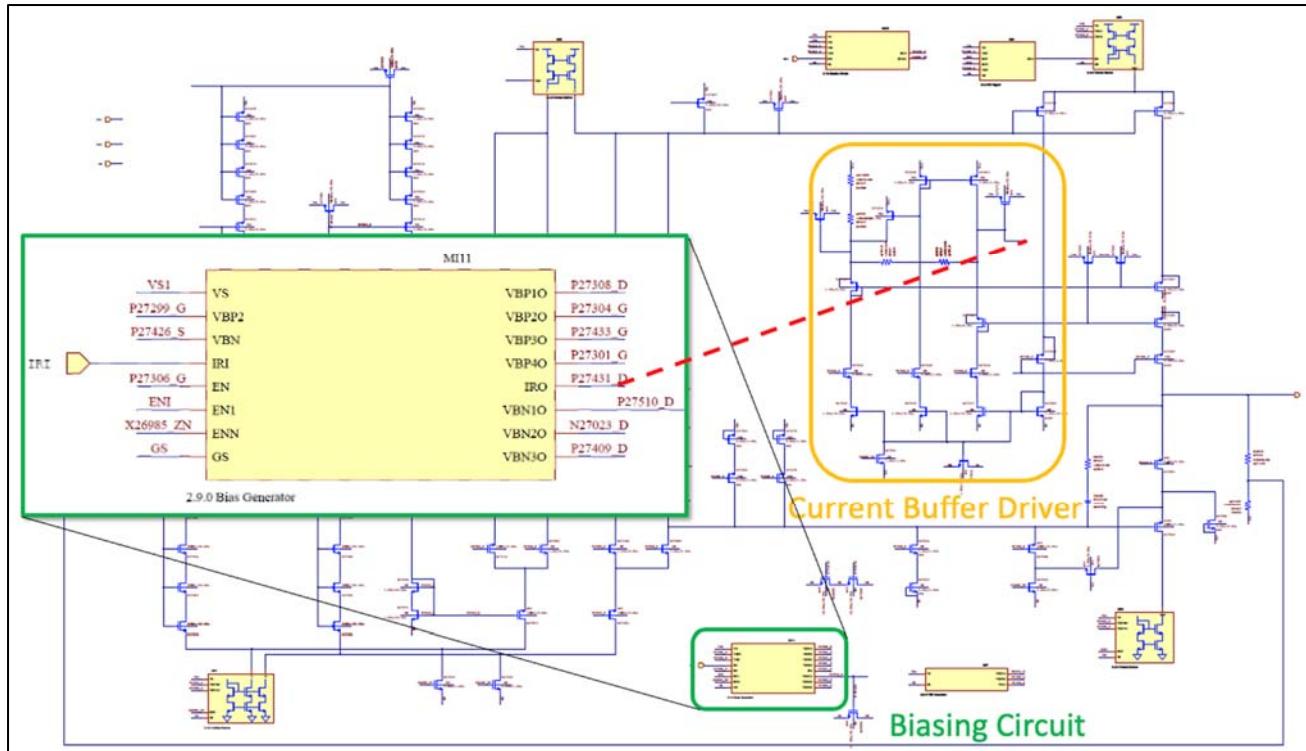
125. Aptiv Services has directly infringed and continues to directly infringe the '074 Patent at least by making, using, testing, offering to sell, selling, and/or importing into the United States the Aptiv Accused Products, or by directing or controlling others to make, use, test, offer to sell, sell, and/or import into the United States those products.

126. The Aptiv Accused Products infringe at least claim 1 of the '074 Patent. For example, the following circuit schematics derived from a teardown of the Boston-2 chip has a USB driver circuit that contains a voltage regulator.

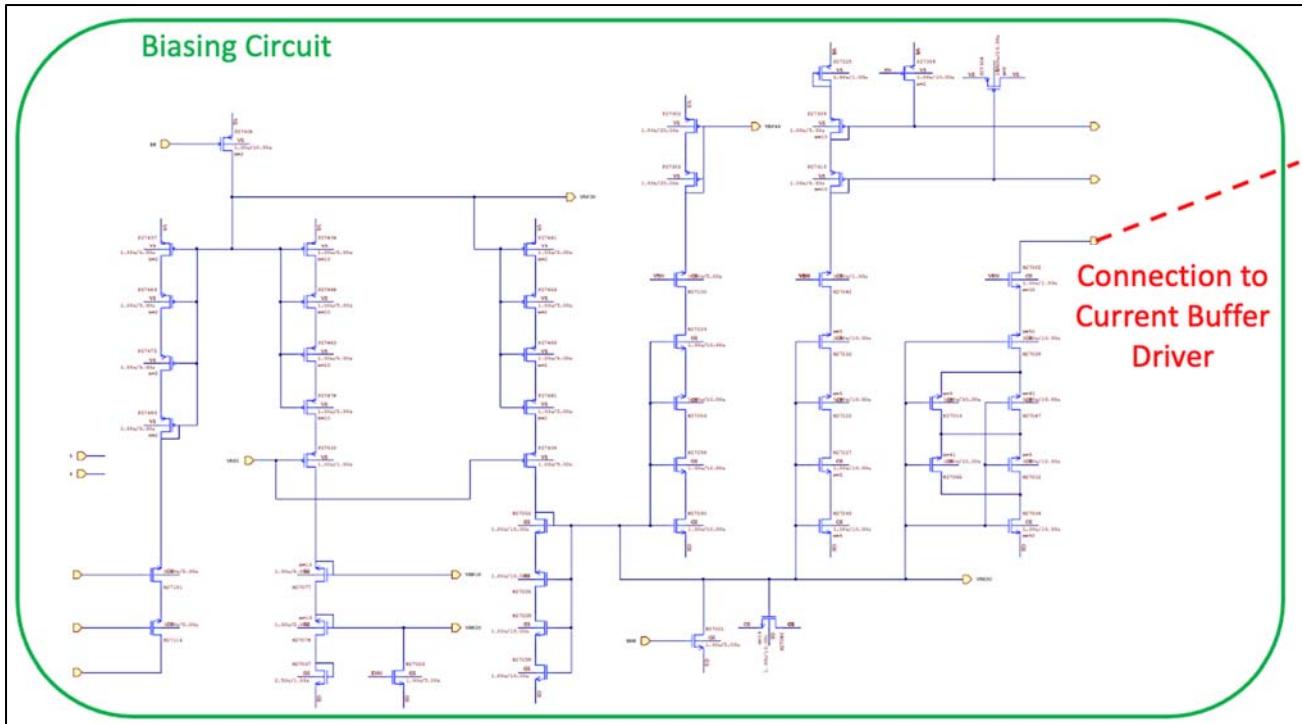
127. The voltage regulator has “an operational amplifier” (red below), “a gm enhanced current buffer driver” (yellow below), “a biasing circuit” (green below), “an output power driver” (purple below), “a current feedback circuit” (blue below), and “a feedback loop coupled between the output power driver and the operational amplifier” (pink below).



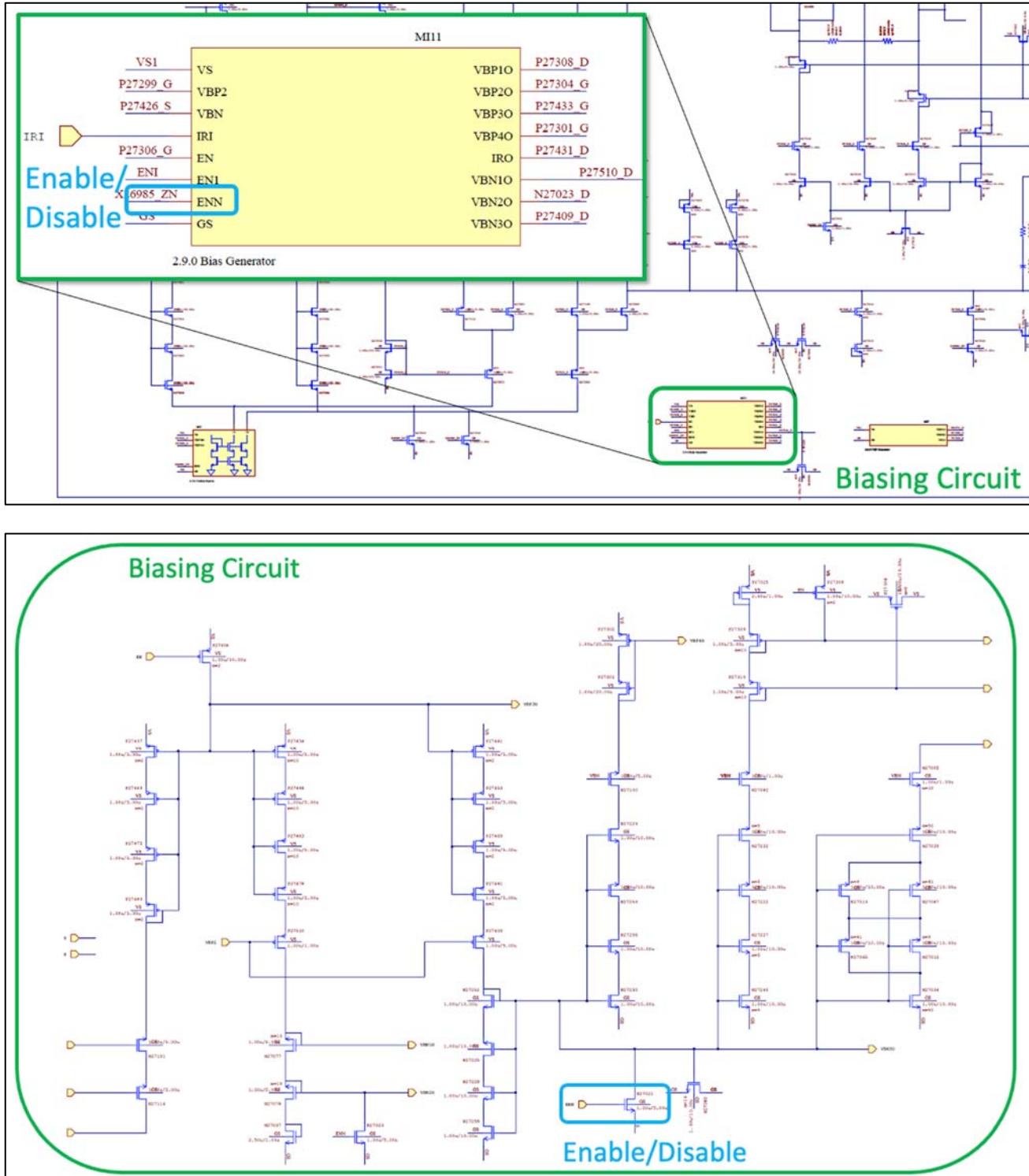
128. The “biasing circuit” (green below) is “coupled to the current buffer driver” (yellow below) by an electrical connection between the two nodes indicated below by the dashed red line.



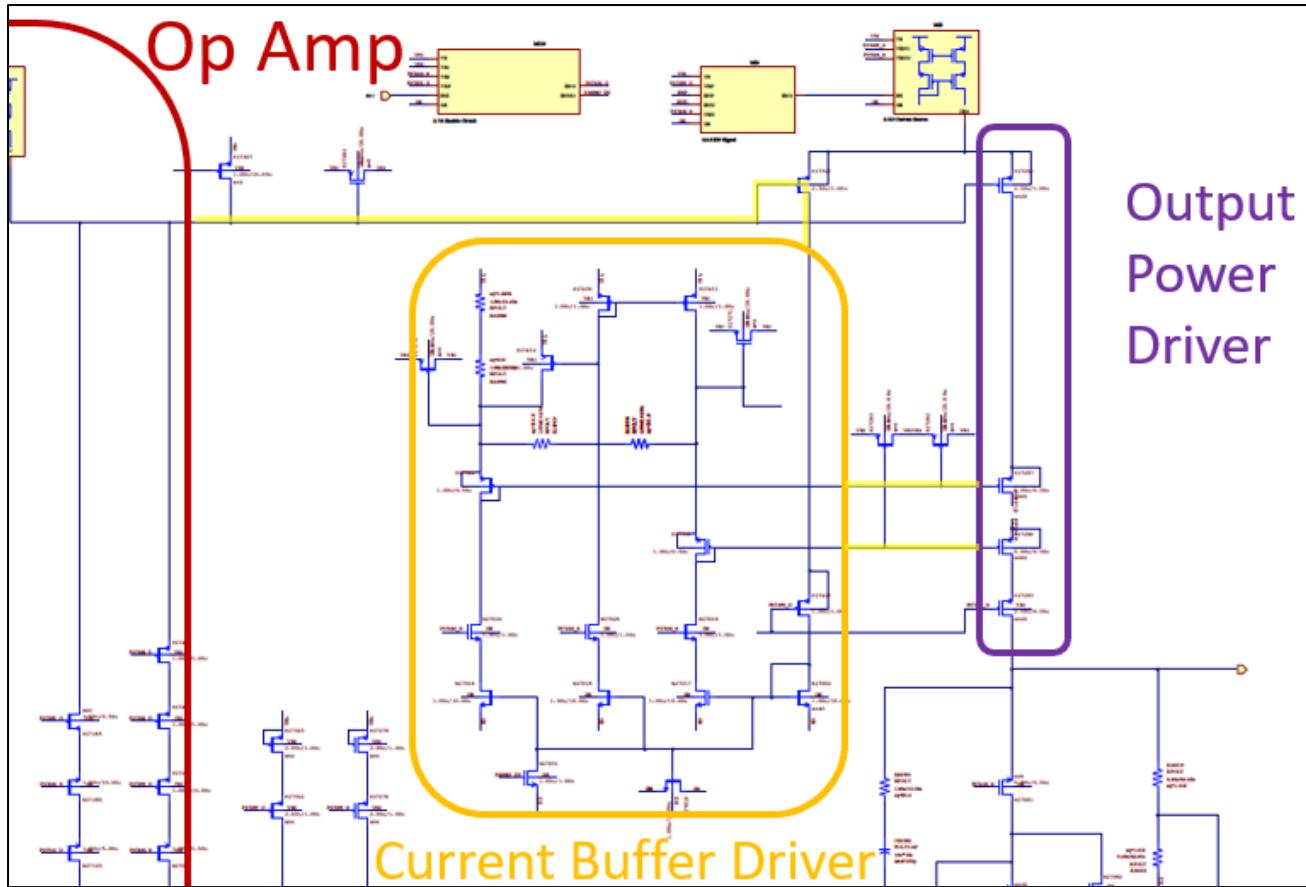
129. The biasing circuit is shown in greater detail in the below schematic. The voltage of the node that connects the biasing circuit to the current buffer driver determines the ratio of current that the current buffer driver draws from DC relative to the current feedback circuit. For at least this reason, the biasing circuit “set[s] a biasing ratio for the gm-boost of the current buffer driver.”



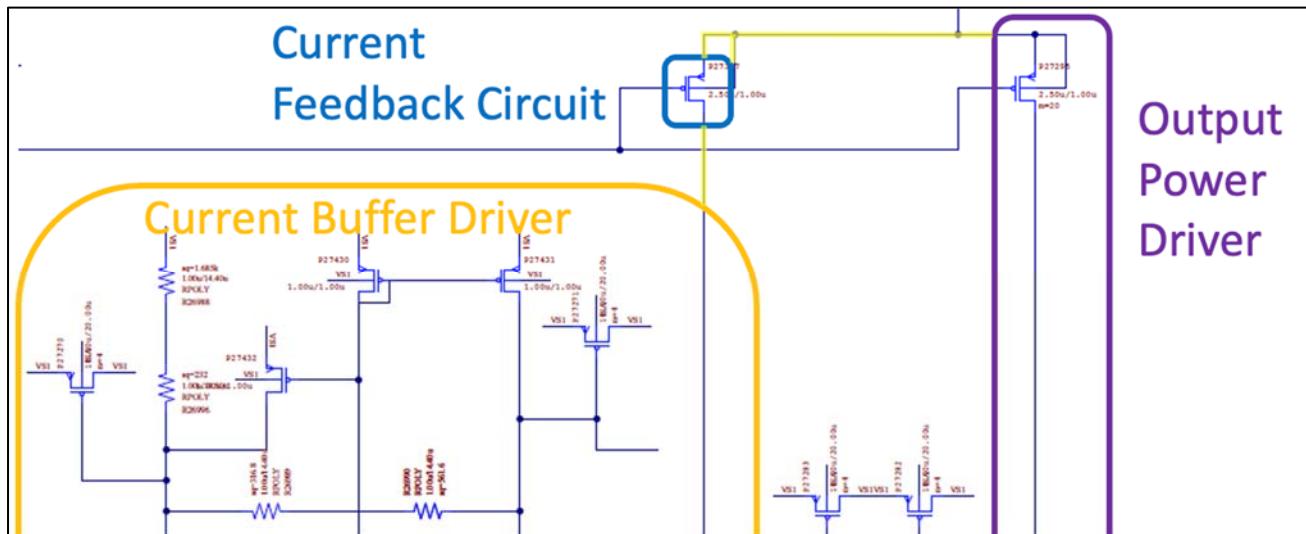
130. The voltage regulator further includes “an enable/disable function to enable/disable the biasing circuit for reducing standby current,” as demonstrated in the following schematics. Namely, an enable/disable signal can selectively enable or disable the transistor depicted in blue below. When this transistor is disabled, the biasing circuitry is disabled, thereby reducing current when the biasing circuitry is not in use.



131. Further, “the current buffer driver is coupled between the operational amplifier and the output power driver,” at least through the electrical connections highlighted in yellow in the schematic below.



132. Finally, the “current feedback circuit [is] coupled between the output power driver and the current buffer driver,” at least through the electrical connections highlighted in yellow below.



133. Upon information and belief, Aptiv Services knew that the Aptiv Accused Products infringe the '074 Patent prior to the filing of Microchip's initial counterclaims in this case through its detailed review of Microchip's USB patent portfolio, and no later than the May 11, 2023 filing of Microchip's counterclaims that alleged infringement of the '074 Patent against the Dual Role Hub. At least since the date when Aptiv Services learned of the '074 Patent, Aptiv Services' infringement of the '074 Patent has been willful and deliberate.

134. Aptiv Services also indirectly infringes the '074 Patent. Aptiv Services has induced and continues to induce the infringement of the '074 Patent by its customers, auto manufacturers, distributors, dealers, and/or infotainment system end users, knowing through its routine review of Microchip's USB patent portfolio that its actions would induce such infringement.

135. Aptiv Services actively encourages its customers, auto manufacturers, and/or end users to infringe claims of the '074 Patent by providing the Aptiv Accused Products, and advertising and advising its customers and auto manufacturers how to incorporate the Aptiv Accused Products into an infotainment system and/or automobile in a manner that infringes the '074 Patent.

136. On information and belief, Aptiv Services will continue to infringe and induce infringement of the '074 Patent, unless enjoined by this Court.

137. As a result of Aptiv Services' infringement of the '074 Patent, Microchip has suffered and will continue to suffer damages in an amount to be proven at trial.

138. Microchip is entitled to recover damages for pre-suit infringement because it has complied with 35 U.S.C. § 287.

139. As a result of Aptiv Services' infringement of the '074 Patent, Microchip has suffered and will continue to suffer irreparable harm, unless Aptiv Services is enjoined against such acts by this Court.

140. As a result of at least Aptiv Services' willful infringement of the '074 Patent, Microchip is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

JURY DEMAND

Microchip demands a trial by jury on all issues raised in its counterclaims that are so triable.

PRAYER FOR RELIEF

WHEREFORE, for its Answer and Counterclaims, Microchip requests the following judgments and relief against Aptiv Technologies and Aptiv Services:

- a) That all claims against Microchip be dismissed with prejudice and that all relief requested by Aptiv Technologies be denied;
- b) A judgment declaring that Microchip has not infringed and does not infringe, either directly or indirectly, any valid claim of the Aptiv Patents, either literally or under the doctrine of equivalents;
- c) A judgment declaring that the claims of the Aptiv Patents are invalid for failure to comply with the statutory provisions of Title 35 of the United States Code including, without limitation, one or more of §§ 101, 102, 103, and/or 112;
- d) A judgment that Aptiv Services has directly infringed and/or induced infringement of one or more claims of the Microchip Patents in connection with the Aptiv Accused Products;
- e) A judgment and award of all damages sustained by Microchip as a result of Aptiv Services' infringement, including supplemental damages for any continuing post-

verdict infringement up until entry of the final judgment with an accounting as needed;

- f) A permanent injunction enjoining Aptiv Services and anyone in concert with Aptiv Services from infringing or inducing infringement of the Microchip Patents;
- g) An award of Microchip's costs as the prevailing party;
- h) A judgment that Aptiv Services' infringement has been willful, and an award of enhanced damages pursuant to 35 U.S.C. § 284;
- i) A judgment that this case is exceptional under 35 U.S.C. § 285 and, accordingly, that Microchip is entitled to recover reasonable attorneys' fees and costs upon prevailing in this action;
- j) A judgment and an award of all interest and costs incurred; and
- k) Any award or any such other relief that the Court deems just and proper.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP

OF COUNSEL:

John M. Neukom
Barbara N. Barath
Yuqing Cui
DEBEVOISE & PLIMPTON LLP
650 California Street
San Francisco, CA 94108
(415) 738-5700

Andrew Gish
Edward Tulin
Ryan K. Iwahashi
GISH PLLC
41 Madison Avenue, Floor 31
New York, NY 10010
(212) 518-2000

Jack B. Blumenfeld (#1014)
Brian P. Egan (#6227)
1201 North Market Street
P.O. Box 1347
Wilmington, DE 19899-1347
(302) 658-9200
jblumenfeld@morrisnichols.com
began@morrisnichols.com

Attorneys for Defendant

July 14, 2023

CERTIFICATE OF SERVICE

I hereby certify that on July 14, 2023, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on July 14, 2023, upon the following in the manner indicated:

Philip A. Rovner, Esquire
Jonathan A. Choa, Esquire
POTTER ANDERSON & CORROON, LLP
1313 North Market Street
Hercules Plaza, 6th Floor
Wilmington, DE 19801
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

Daralyn J. Durie, Esquire
Eric C. Wiener, Esquire
Timothy Saulsbury, Esquire
Joyce C. Li, Esquire
Tannyr Pasvantis, Esquire
Andrew L. Perito, Esquire
MORRISON & FOERSTER LLP
425 Market Street
San Francisco, CA 94105
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

W. Henry Huttinger, Esquire
MORRISON & FOERSTER LLP
707 Wilshire Boulevard
Los Angeles, CA 90017
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

Andrew Jones, Esquire
MORRISON & FOERSTER LLP
2100 L Street, NW, Suite 900
Washington, D.C. 20037
Attorneys for Plaintiff

VIA ELECTRONIC MAIL

/s/ Brian P. Egan

Brian P. Egan (#6227)